Fig 1

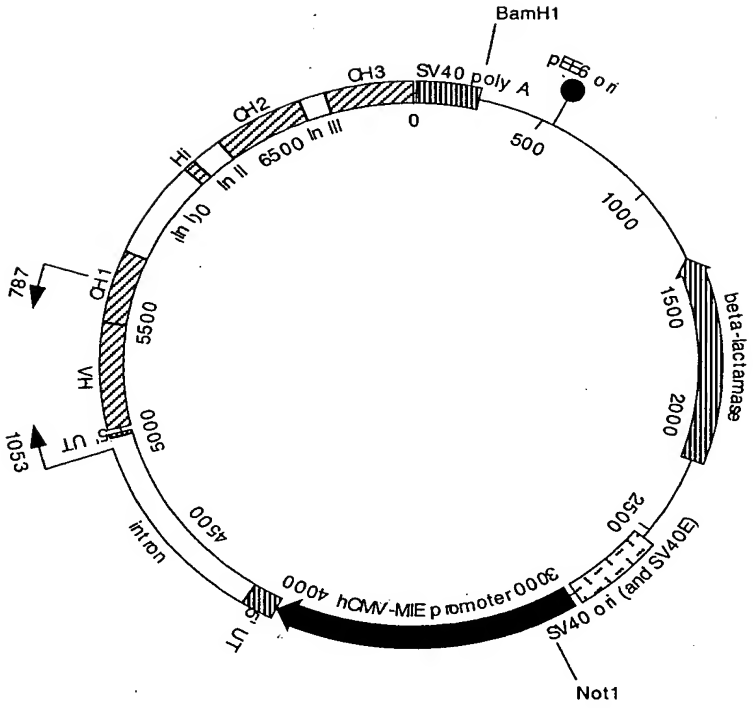

BamH1
CH3
SV40 poly A
pEE6 ori
CH2
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
6500
Hl
In II
In III
In I
CH1
787
VH
5' UT
1053
intron
hCMV-MIE promoter
SV40 ori (and SV40E)
beta-lactamase
Not1

Fig 2

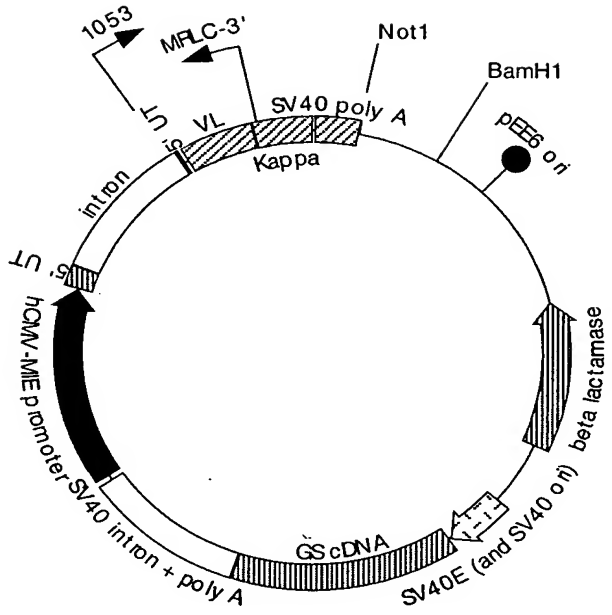
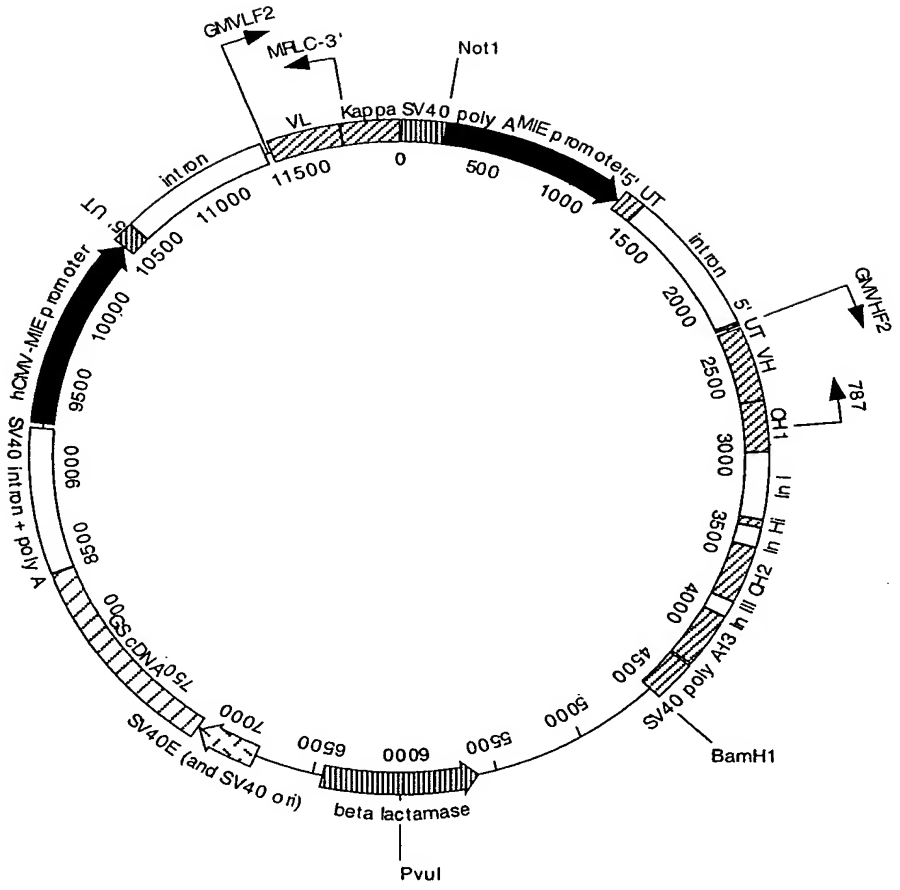

1053
MFLC-3'
Not1
BamH1
SV40 poly A
VL
Kappa
pEE6 ori
intron
5' UT
hCMV-ME promoter
SV40 intron + poly A
GS cDNA
SV40E (and SV40 ori)
beta lactamase

Fig 3


GMVLF2
MRLC-3'
Not1
VL
Kappa SV40 poly A
MIE promoter
5' UT
intron
GMVHF2
787
VH
CH1
In I
In Hi
CH2
In III
poly A
BamH1
beta lactamase
PvuI
SV40E (and SV40 ori)
cDNA
SV40 intron + poly A
hCMV-MIE promoter
5' UT
intron
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
6500
7000
7500
8000
8500
9000
9500
10000
10500
11000
11500

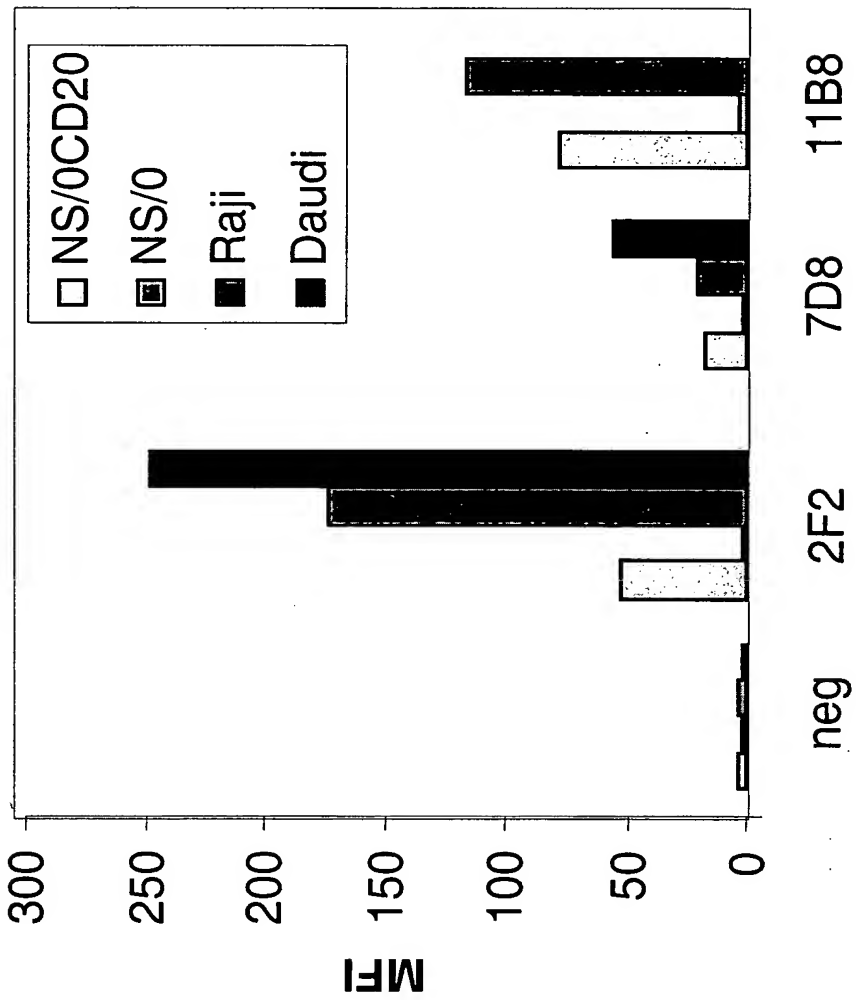
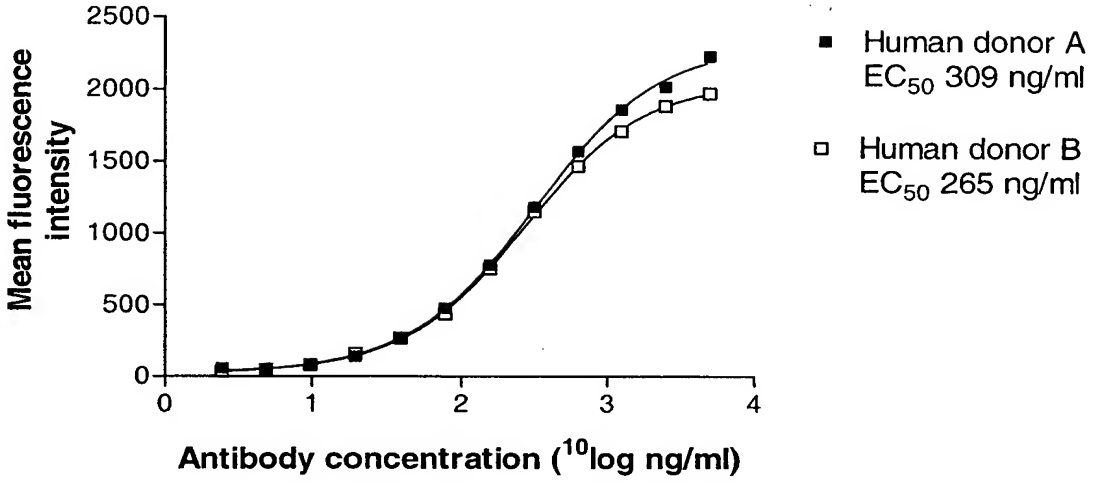

NS/0CD20
NS/0
Raji
Daudi
MFI
300
250
200
150
100
50
0
neg
2F2
7D8
11B8

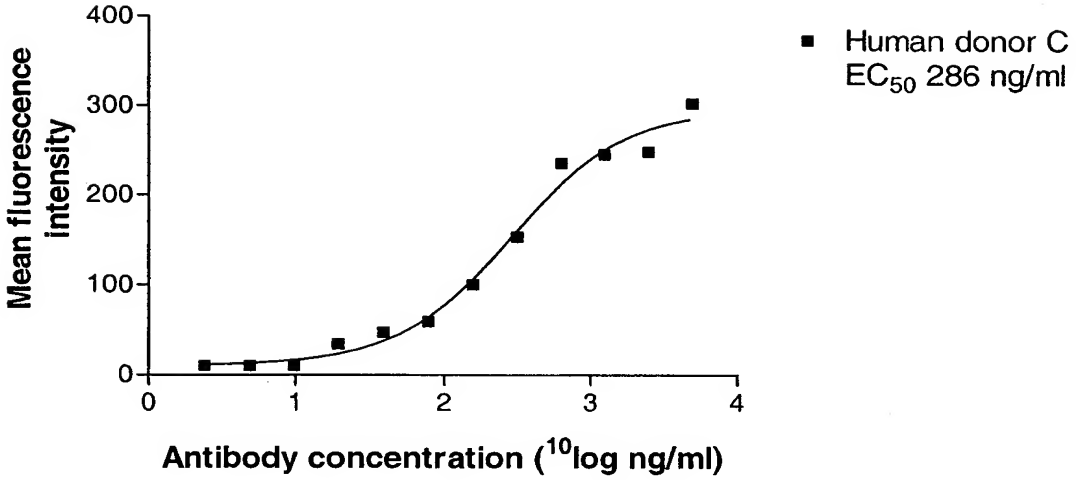
Fig 4

Fig 5A-B

A


Mean fluorescence intensity
2500
2000
1500
1000
500
0
0
1
2
3
4
Antibody concentration (^{10}log ng/ml)
Human donor A
EC50 309 ng/ml
Human donor B
EC50 265 ng/ml

B


Mean fluorescence intensity
400
300
200
100
0
0
1
2
3
4
Antibody concentration (^{10}log ng/ml)
Human donor C
EC50 286 ng/ml

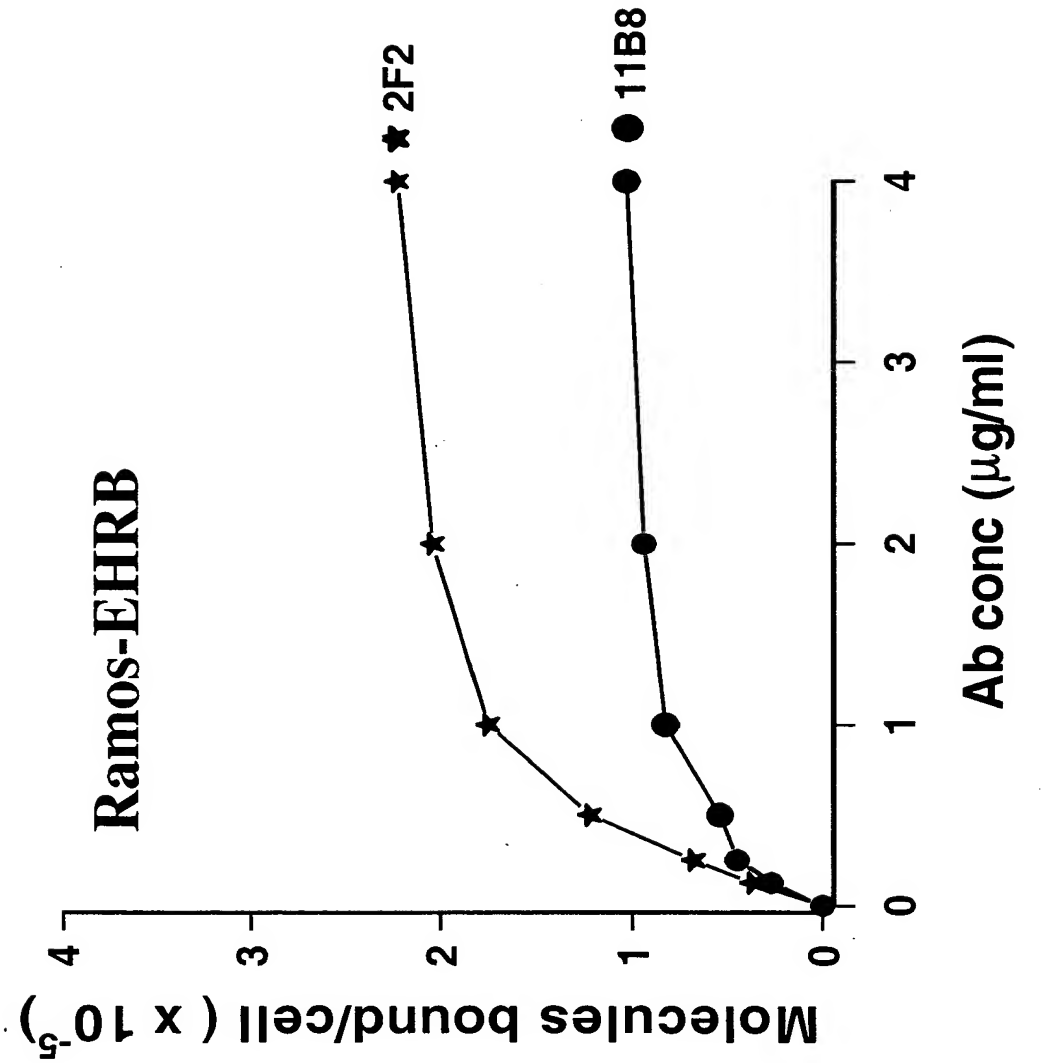
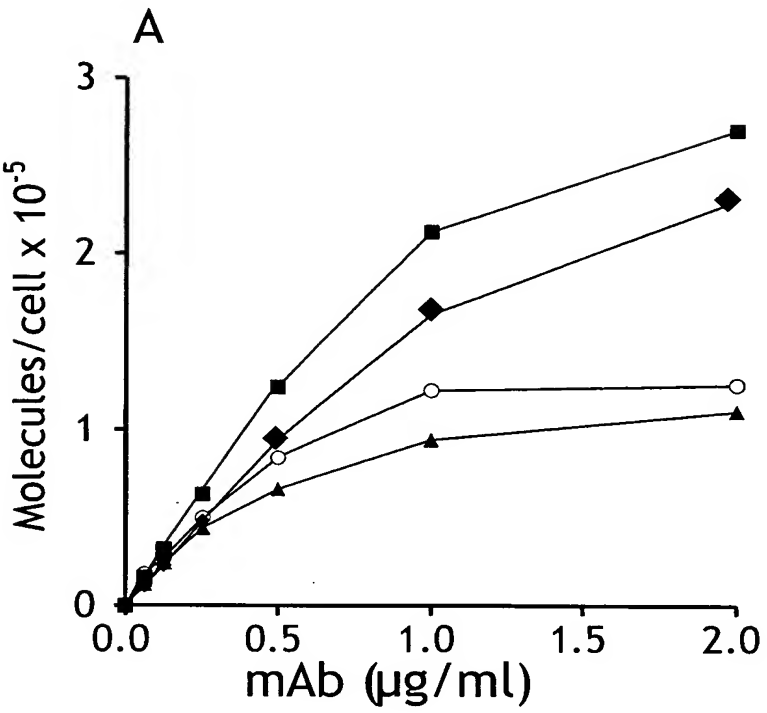
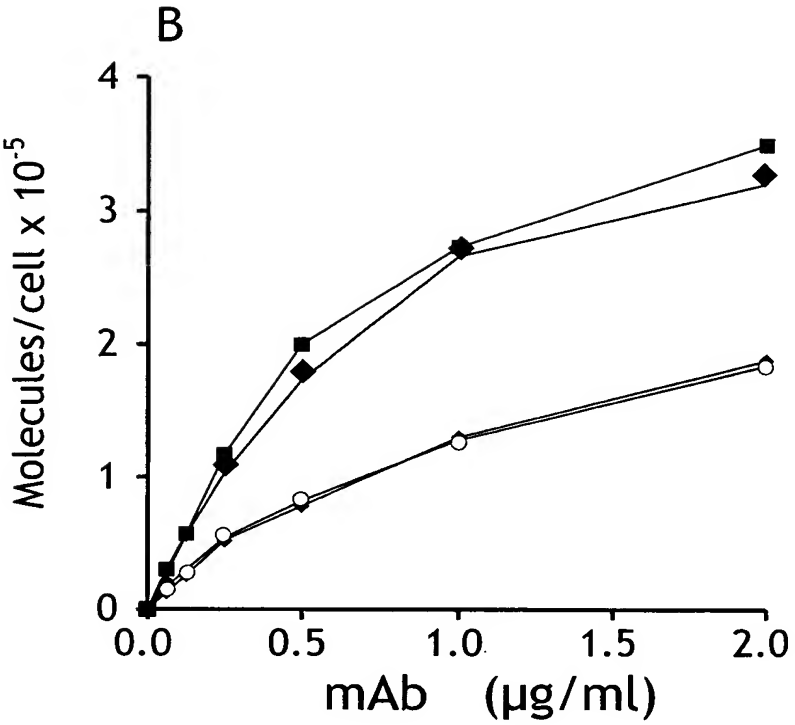

Ramos-EHRB
2F2
11B8
Molecules bound/cell (x 10-5)
Ab conc (μg/ml)
0
1
2
3
4

Fig 6

Fig 7A-B

^{125}I-labeled 2F2 (■), ^{125}I-labeled rituximab (◆),
^{125}I-labeled 11B8 (○), and ^{125}I-labeled B1 (▲)




B
Molecules/cell x 10-5
4
3
2
1
0
0.0
0.5
1.0
1.5
2.0
mAb (µg/ml)

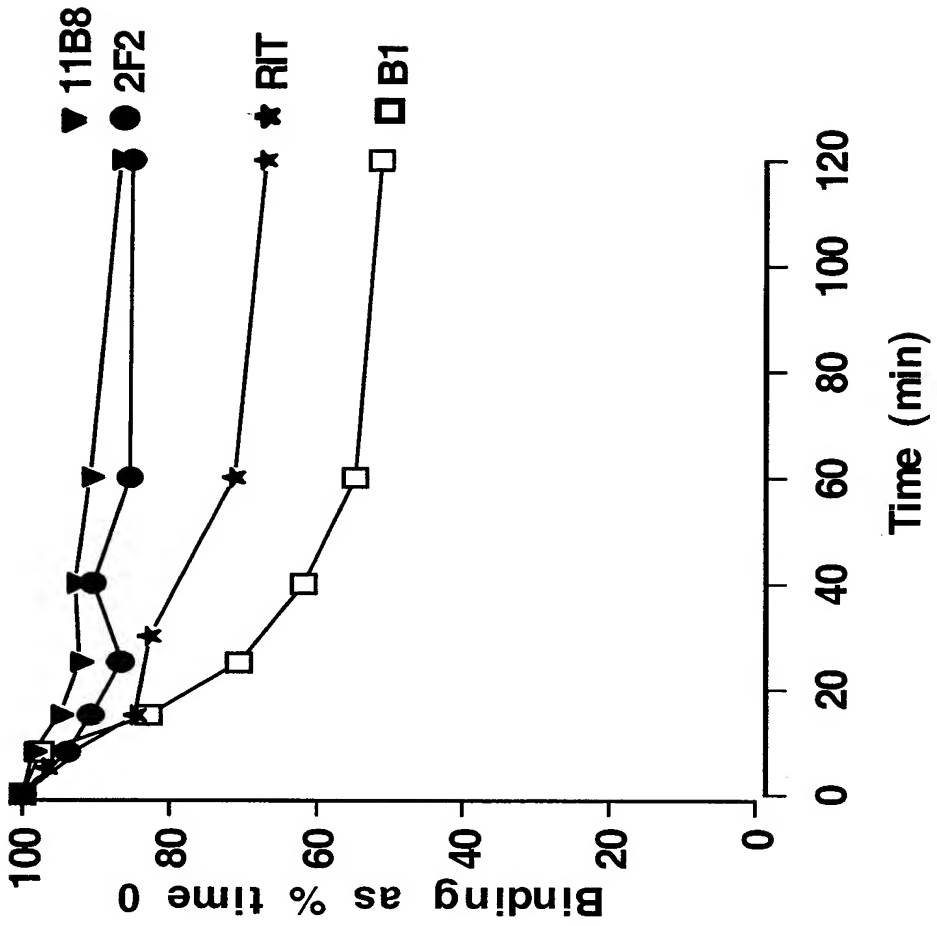

11B8
2F2
RIT
B1
Binding as % time 0
100
80
60
40
20
0
0
20
40
60
80
100
120
Time (min)

Fig 8

Fig 9

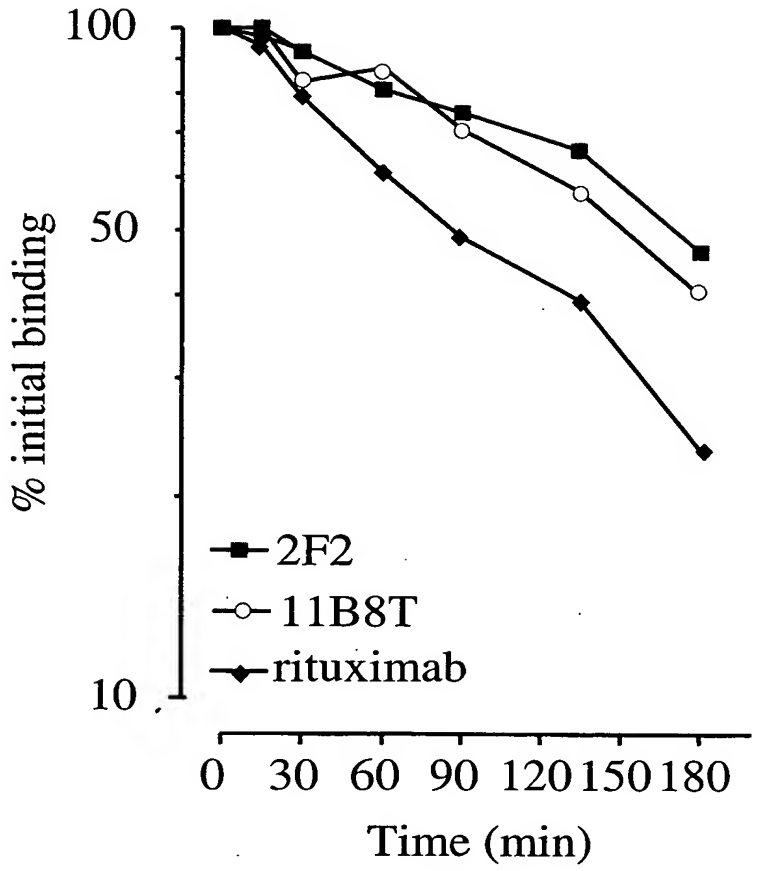
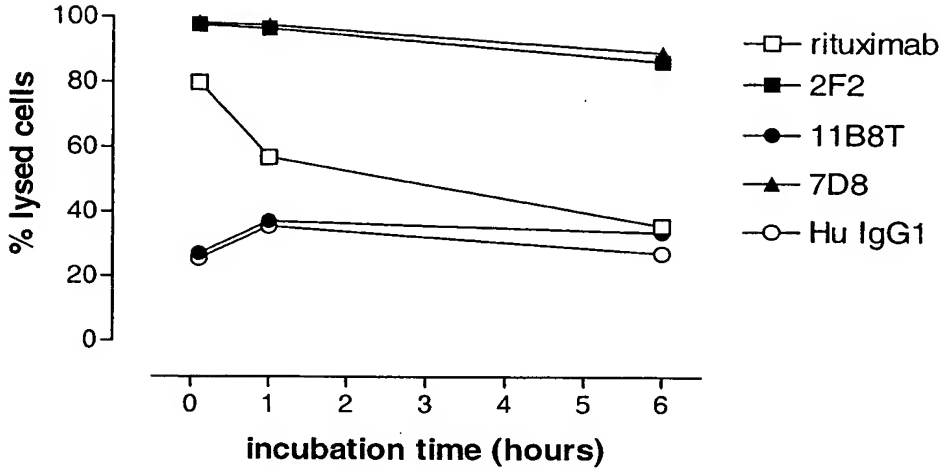

100
50
10
% initial binding
2F2
11B8T
rituximab
0
30
60
90
120
150
180
Time (min)

Fig 10A-B

A


100
80
60
40
20
0
% lysed cells
0
1
2
3
4
5
6
incubation time (hours)
rituximab
2F2
11B8T
7D8
Hu IgG1

B

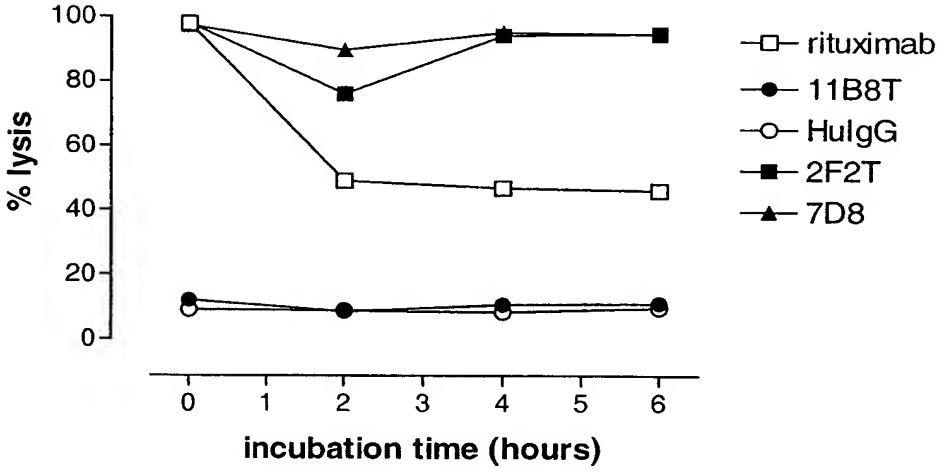
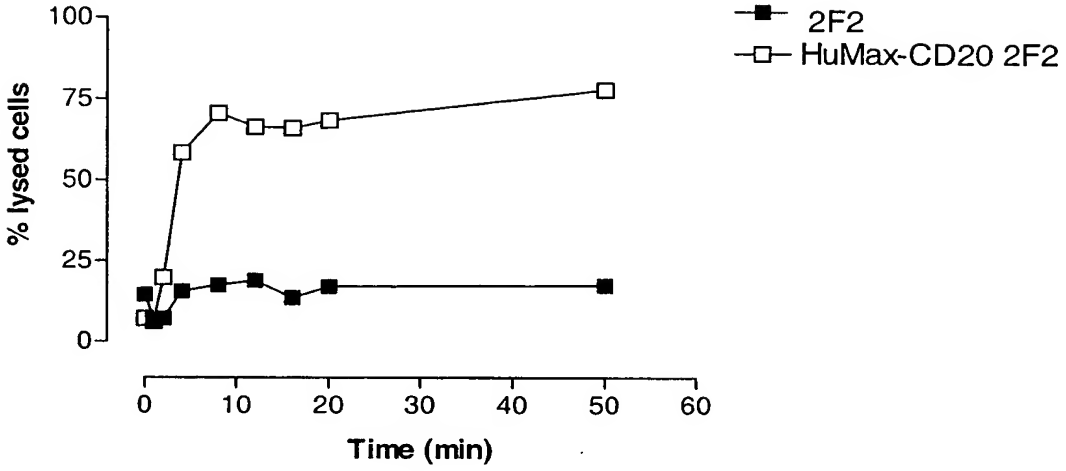
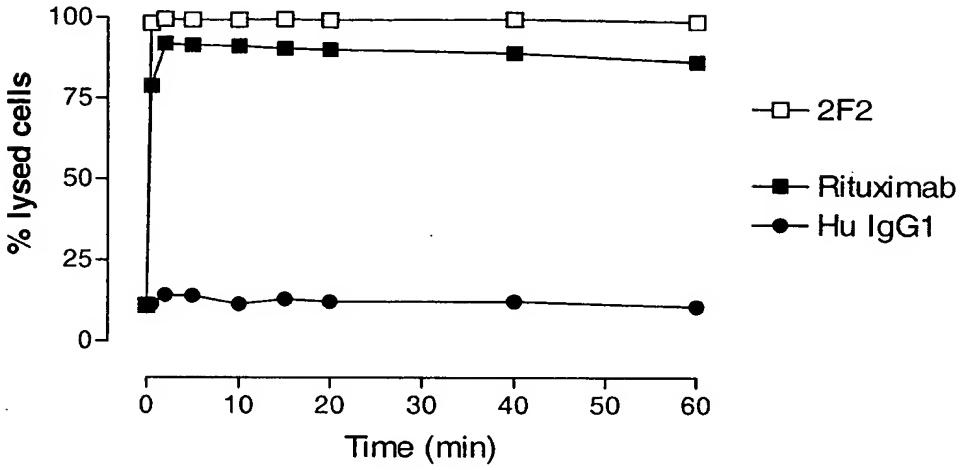

100
80
60
40
20
0
% lysis
0
1
2
3
4
5
6
incubation time (hours)
rituximab
11B8T
HuIgG
2F2T
7D8

Fig 11A-E

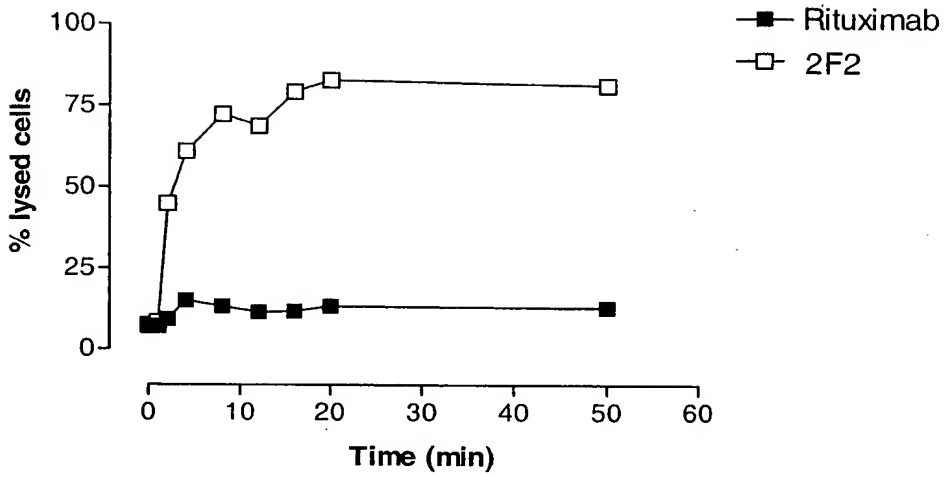
A ARH-77



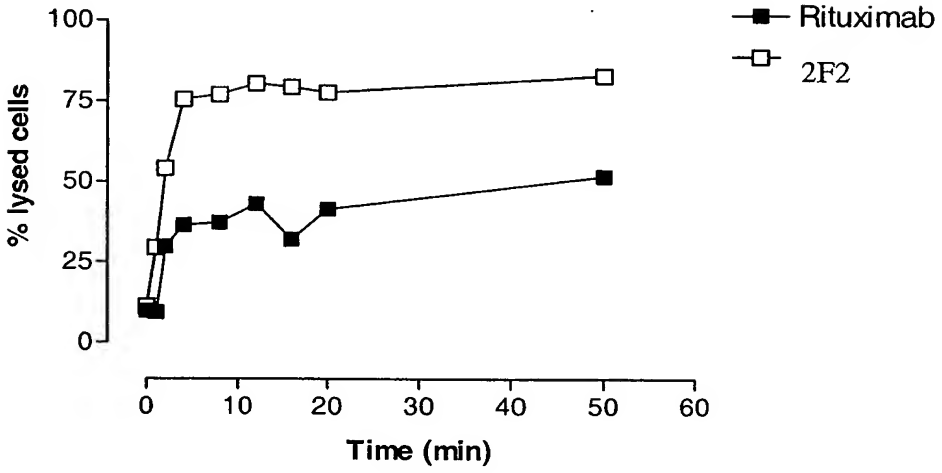
B Daudi



C Raji


Rituximab
2F2
% lysed cells
100
75
50
25
0
0
10
20
30
40
50
60
Time (min)

D DOHH


Rituximab
2F2
% lysed cells
100
75
50
25
0
0
10
20
30
40
50
60
Time (min)

E SU-DHL-4

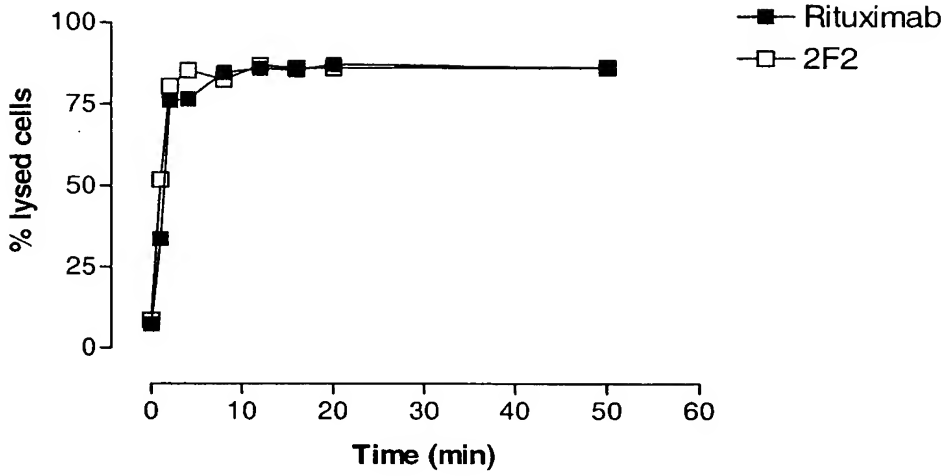
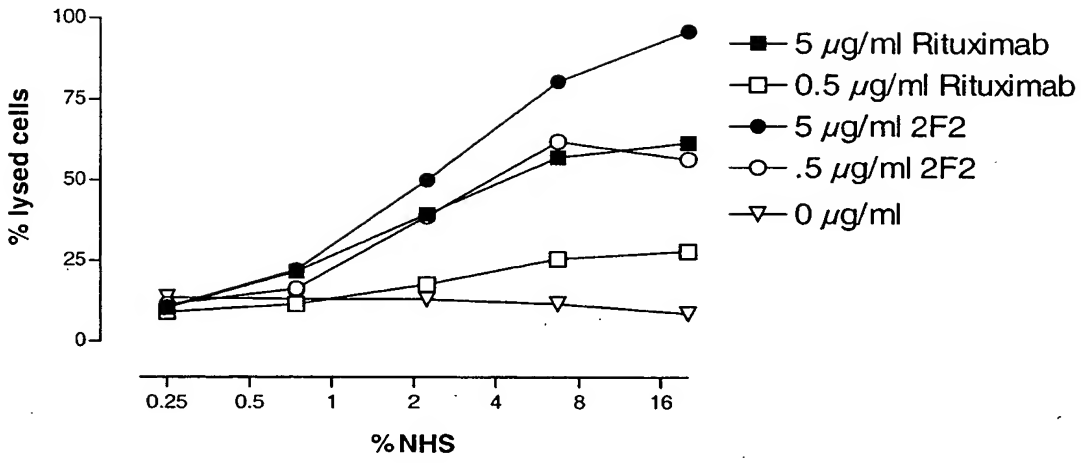
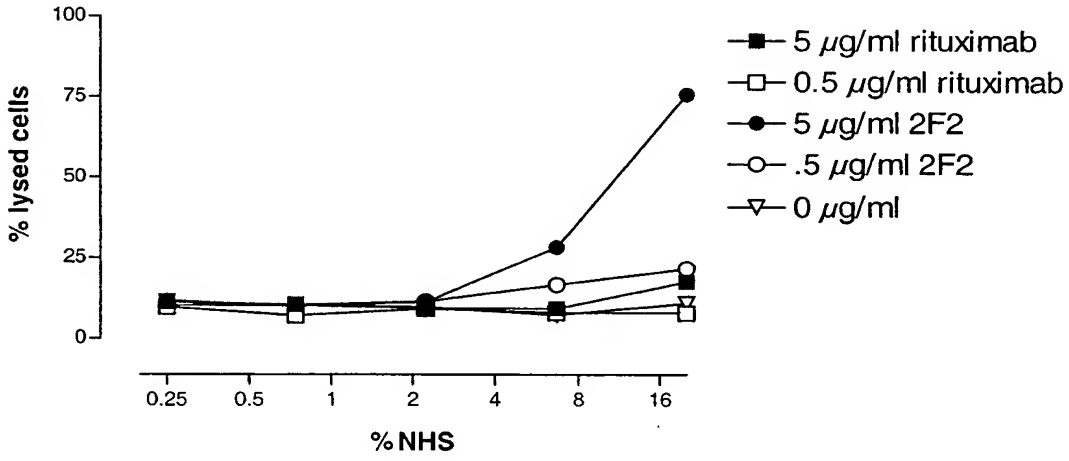

Rituximab
2F2
% lysed cells
100
75
50
25
0
0
10
20
30
40
50
60
Time (min)

Fig 12A-D

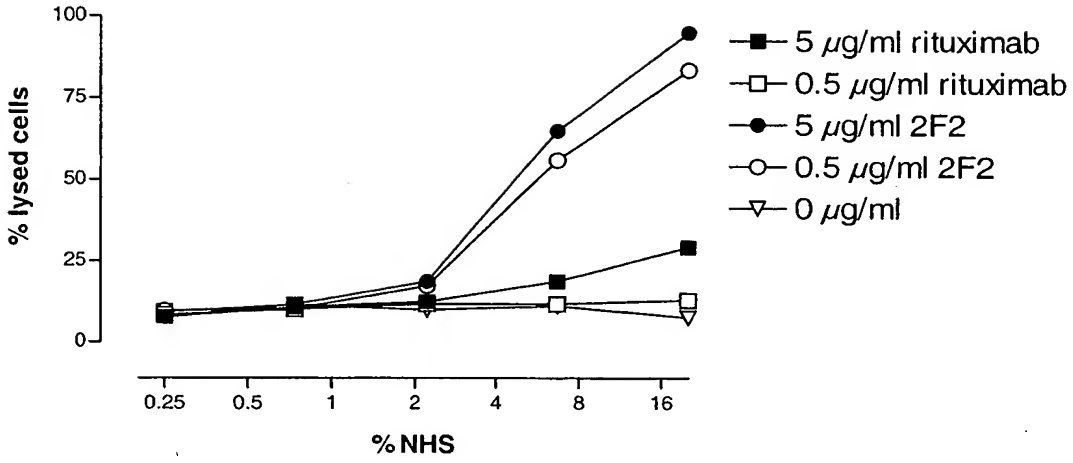
A Daudi



B ARH-77



C DOHH


100
75
50
25
0
% lysed cells
0.25
0.5
1
2
4
8
16
% NHS
5 μg/ml rituximab
0.5 μg/ml rituximab
5 μg/ml 2F2
0.5 μg/ml 2F2
0 μg/ml

D Raji

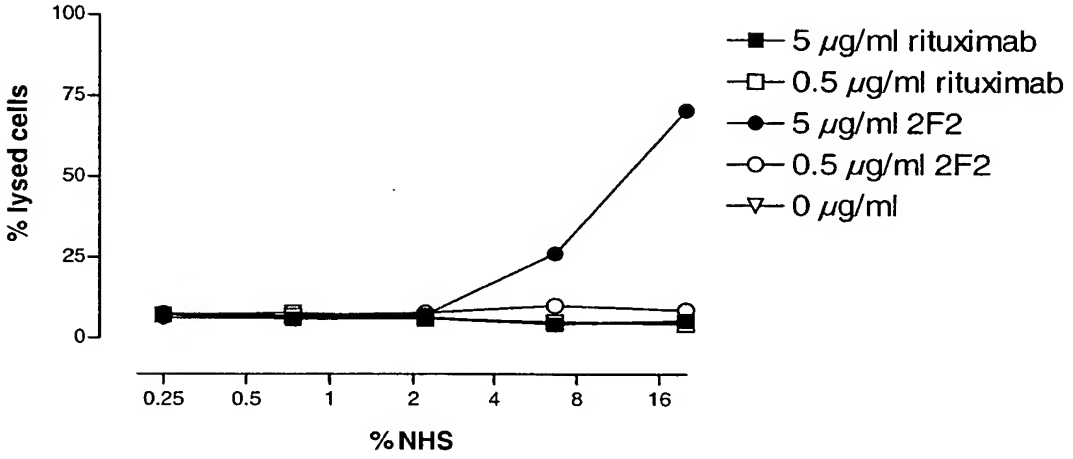
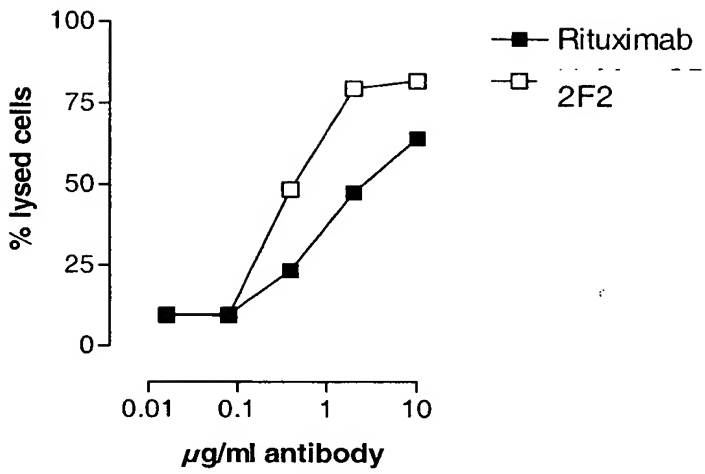
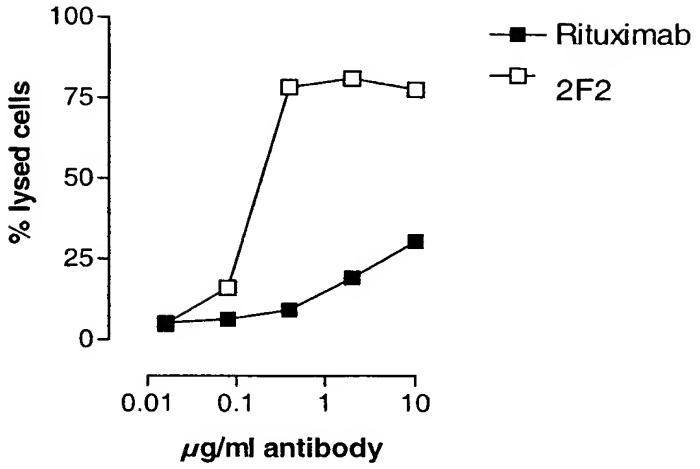

100
75
50
25
0
% lysed cells
0.25
0.5
1
2
4
8
16
% NHS
5 μg/ml rituximab
0.5 μg/ml rituximab
5 μg/ml 2F2
0.5 μg/ml 2F2
0 μg/ml

Fig 13A-D

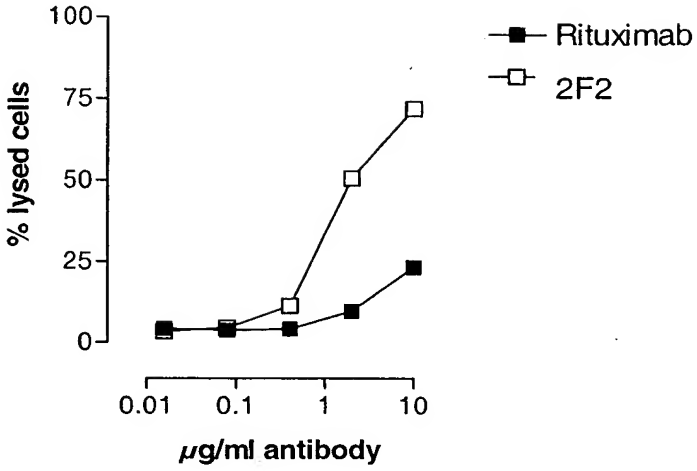
A Daudi



B DOHH



C ARH-77



D Raji

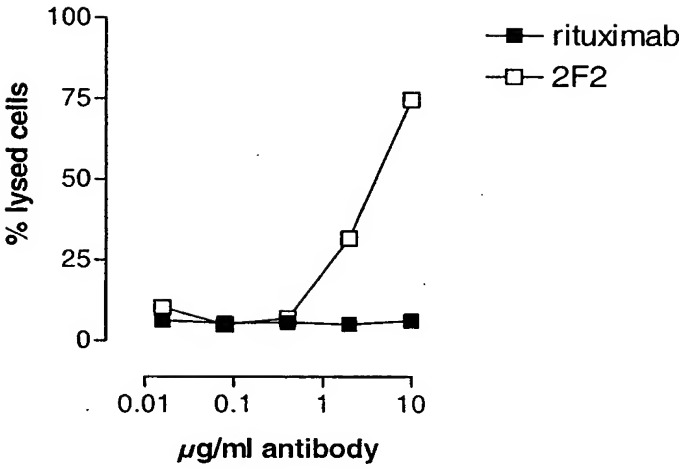
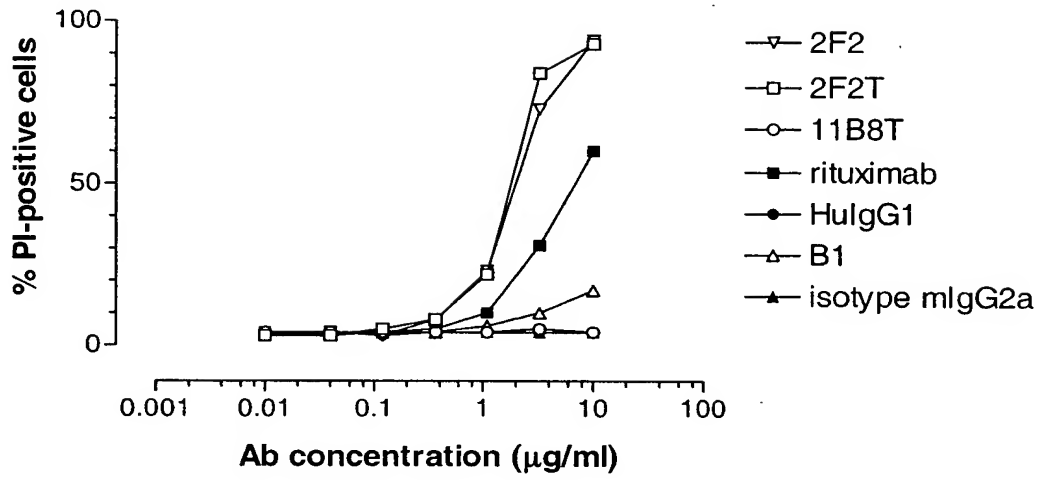
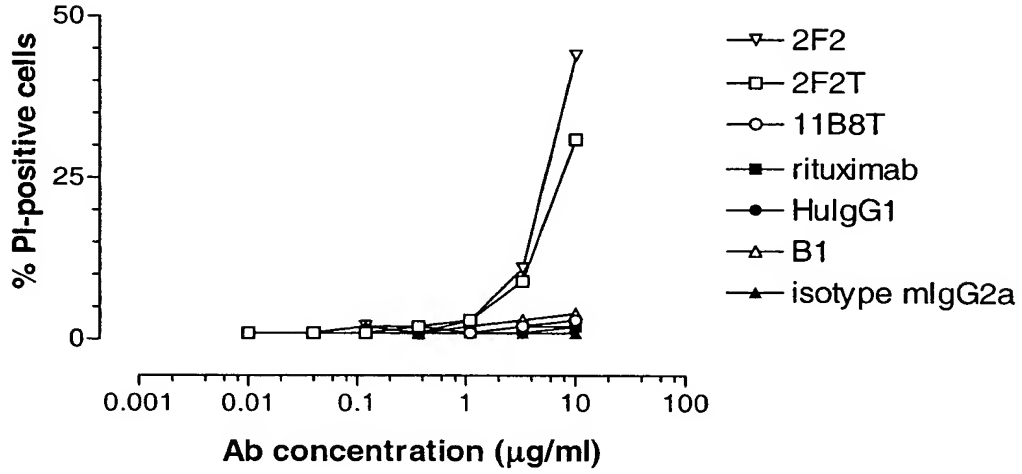


Fig 14 A-B

A Daudi



B Raji



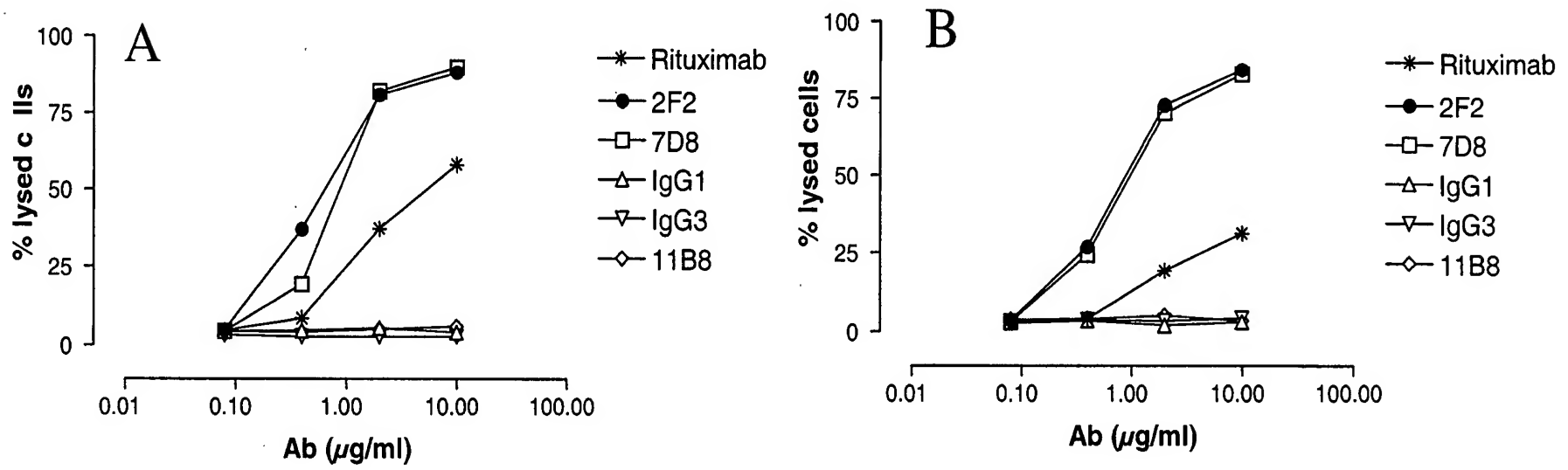


Fig 15A-B

App No.: Not Yet Assigned
Inventor: Jessica Teeling, et al.
Title: HUMAN MONOCLONAL ANTIBODIES AGAINST CD20
Docket No.: GMI-055

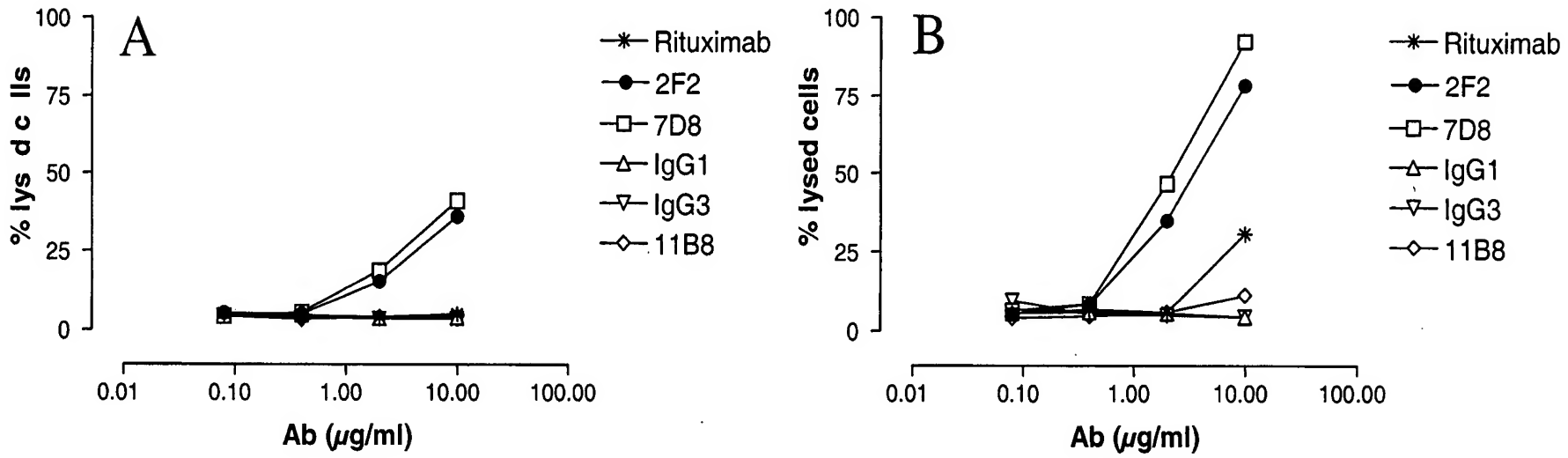
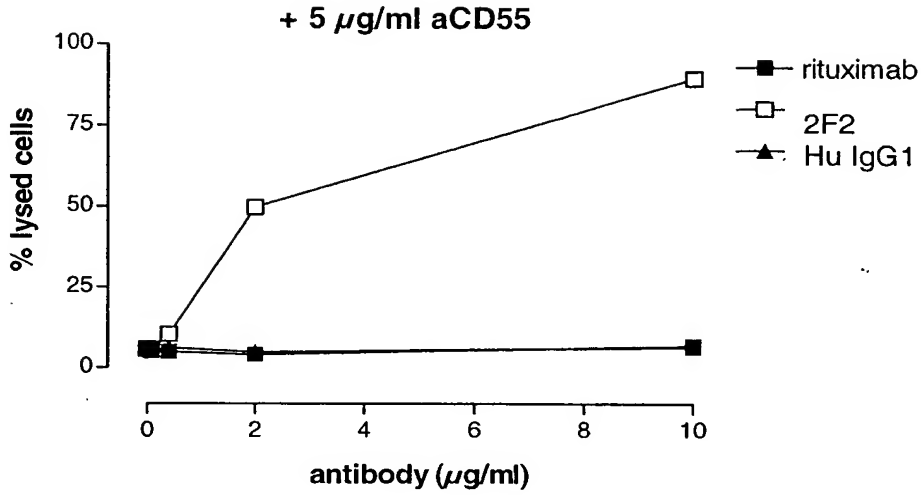


Fig 16A-B

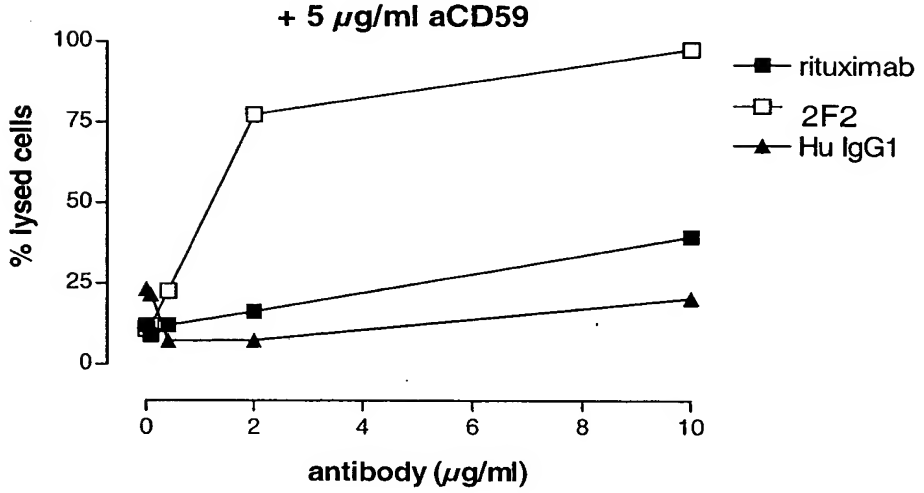
App No.: Not Yet Assigned
Inventor: Jessica Teeling, et al.
Title: HUMAN MONOCLONAL ANTIBODIES AGAINST CD20
Docket No.: GMI-055

Fig 17A-C

A


+ 5 μg/ml aCD55
% lysed cells
100
75
50
25
0
0
2
4
6
8
10
antibody (μg/ml)
rituximab
2F2
Hu IgG1

B


+ 5 μg/ml aCD59
% lysed cells
100
75
50
25
0
0
2
4
6
8
10
antibody (μg/ml)
rituximab
2F2
Hu IgG1

C

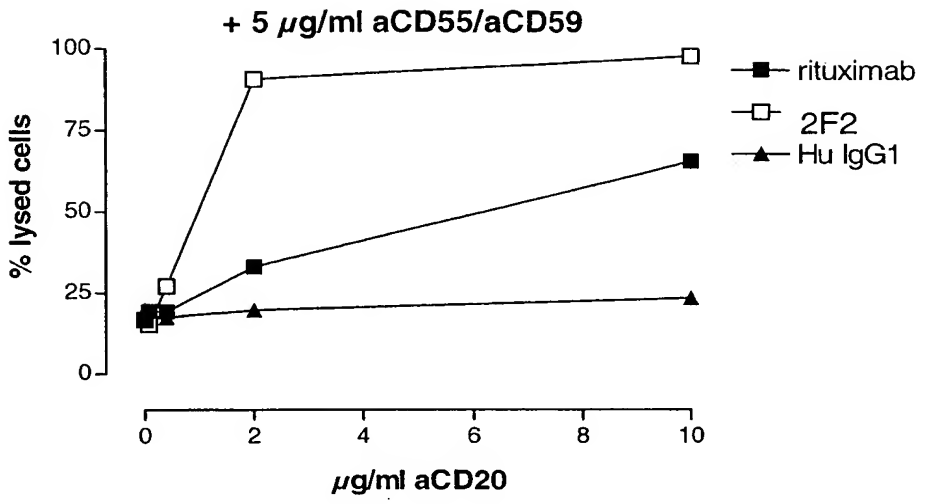
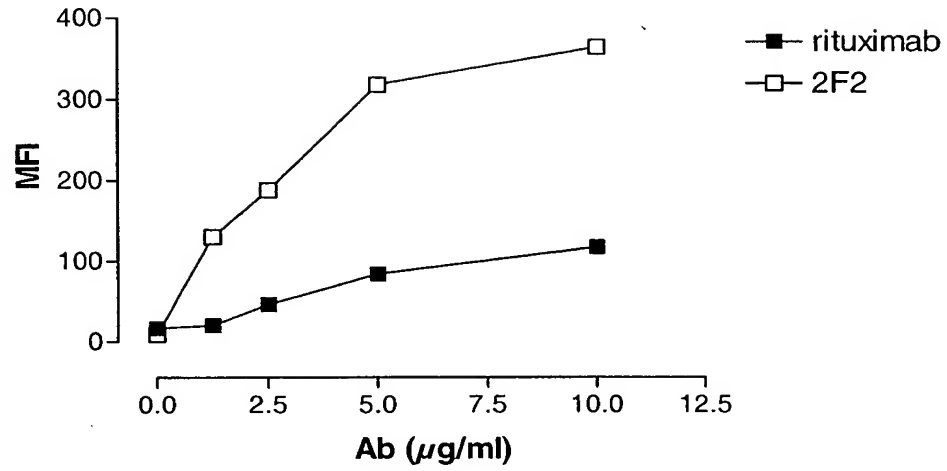
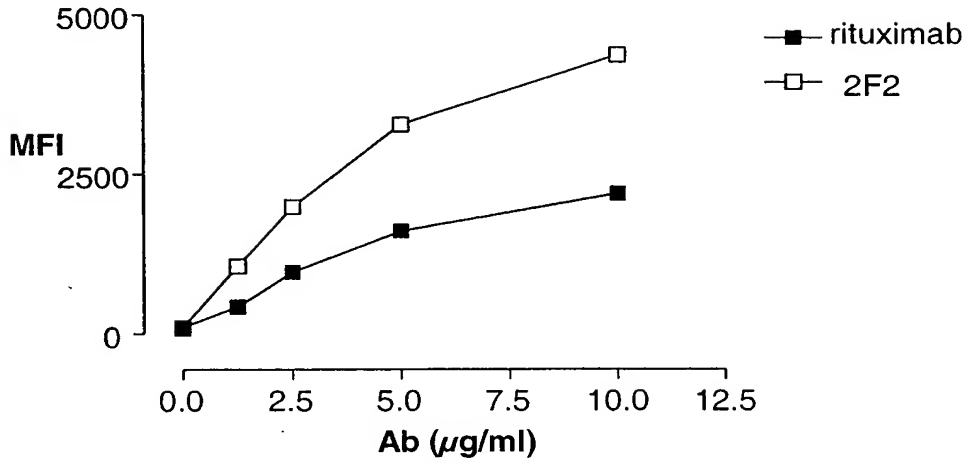

+ 5 μg/ml aCD55/aCD59
% lysed cells
100
75
50
25
0
0
2
4
6
8
10
μg/ml aCD20
rituximab
2F2
Hu IgG1

Fig 18A-D

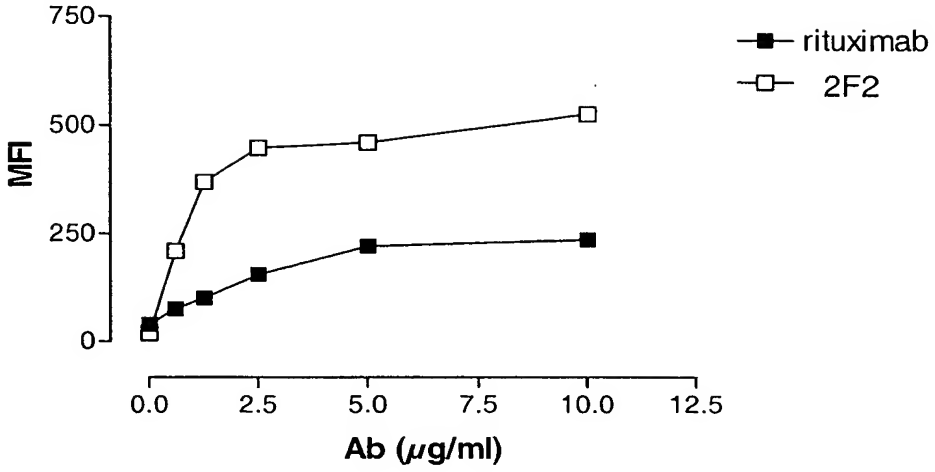
A Daudi



B ARH-77



C DOHH


750
500
250
0
MFI
0.0
2.5
5.0
7.5
10.0
12.5
Ab (μg/ml)
rituximab
2F2

D Raji

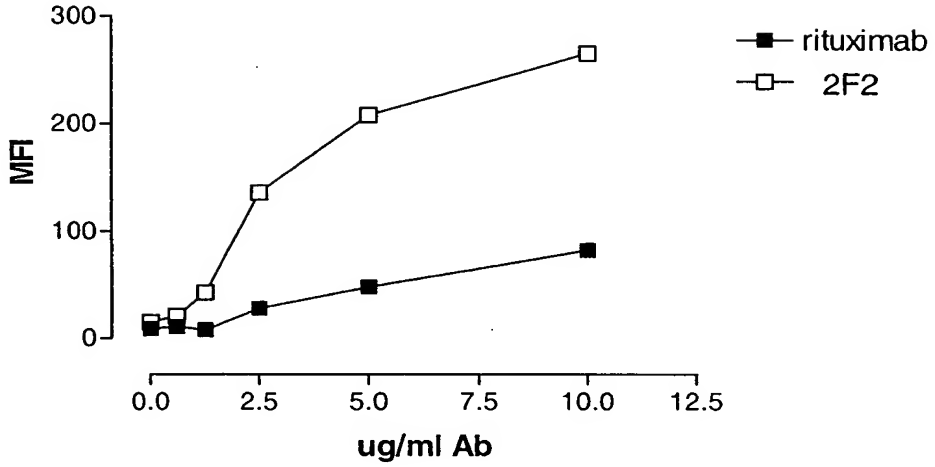
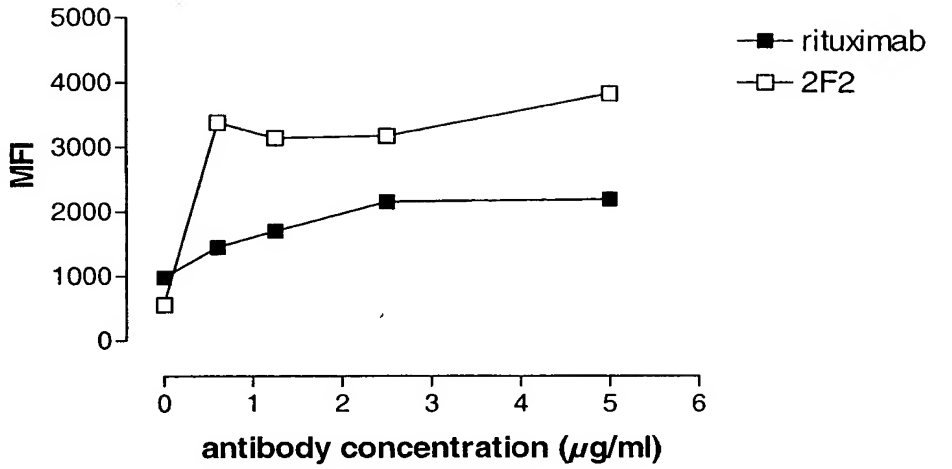
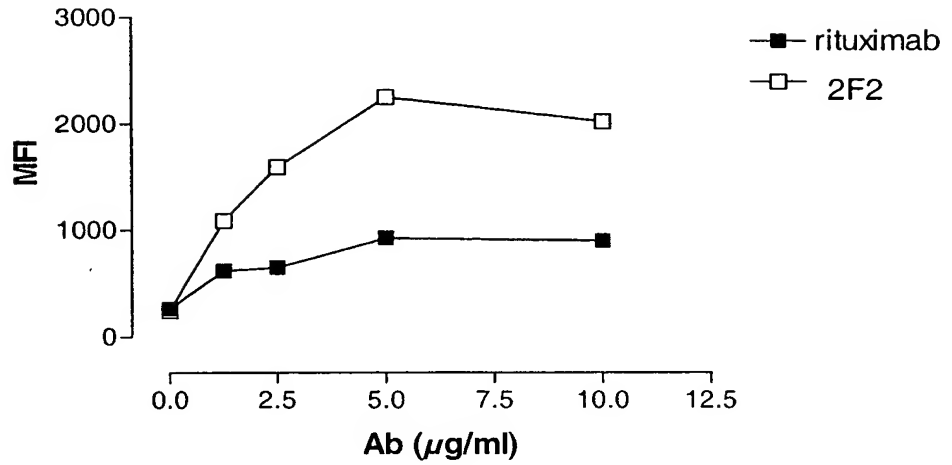

300
200
100
0
MFI
0.0
2.5
5.0
7.5
10.0
12.5
ug/ml Ab
rituximab
2F2

Fig 19A-D

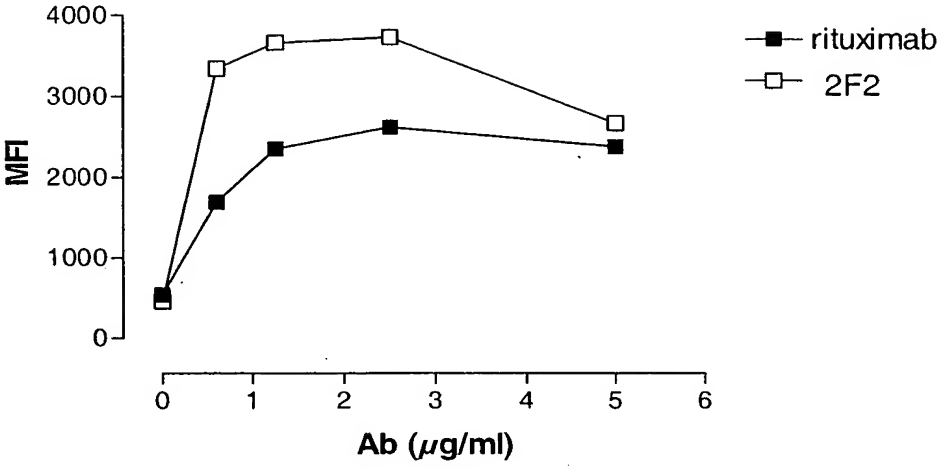
A Daudi



B ARH-77



C DOHH


4000
3000
2000
1000
0
MFI
0
1
2
3
4
5
6
Ab (μg/ml)
rituximab
2F2

D Raji

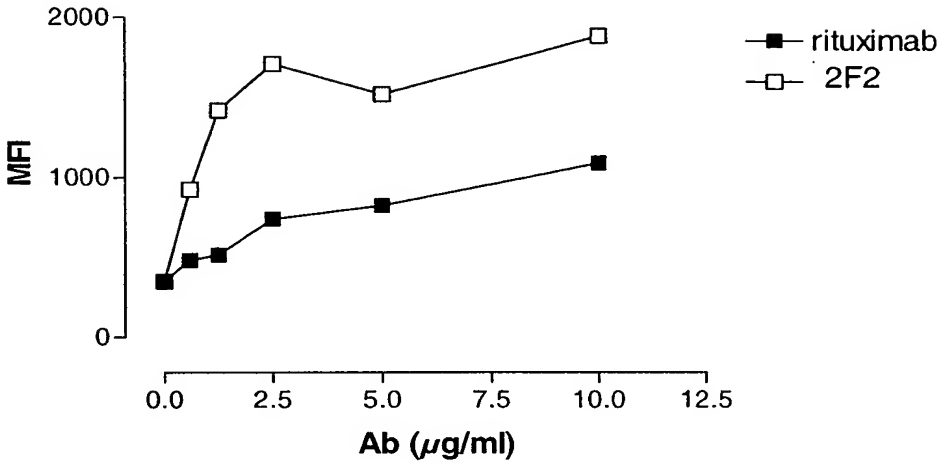

2000
1000
0
MFI
0.0
2.5
5.0
7.5
10.0
12.5
Ab (μg/ml)
rituximab
2F2

Fig 20

ARH-77

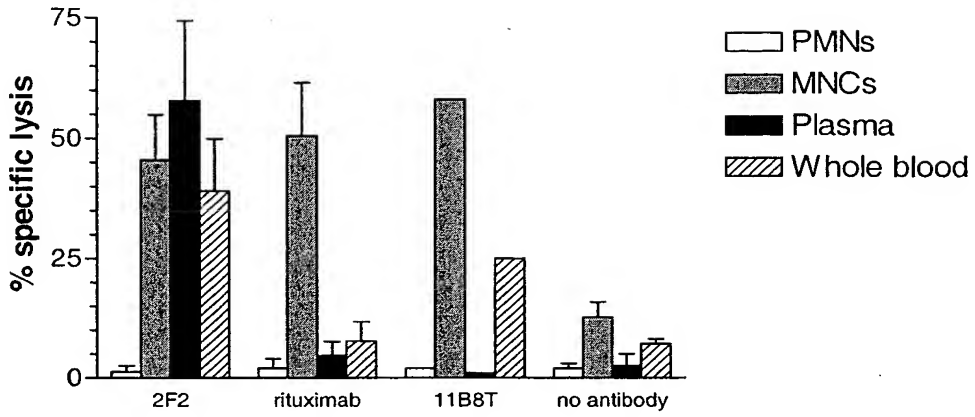

75
50
25
0
% specific lysis
2F2
rituximab
11B8T
no antibody
PMNs
MNCs
Plasma
Whole blood

Fig 21

B-CLL

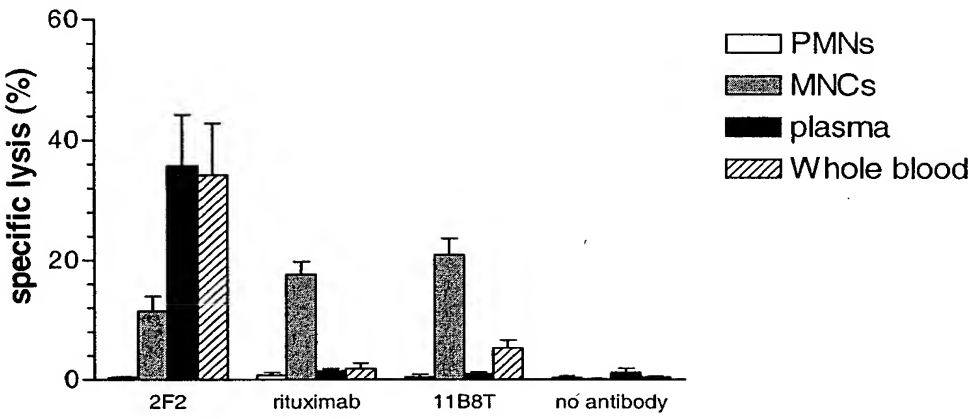

specific lysis (%)
60
40
20
0
2F2
rituximab
11B8T
no antibody
PMNs
MNCs
plasma
Whole blood

Fig 22

HCL

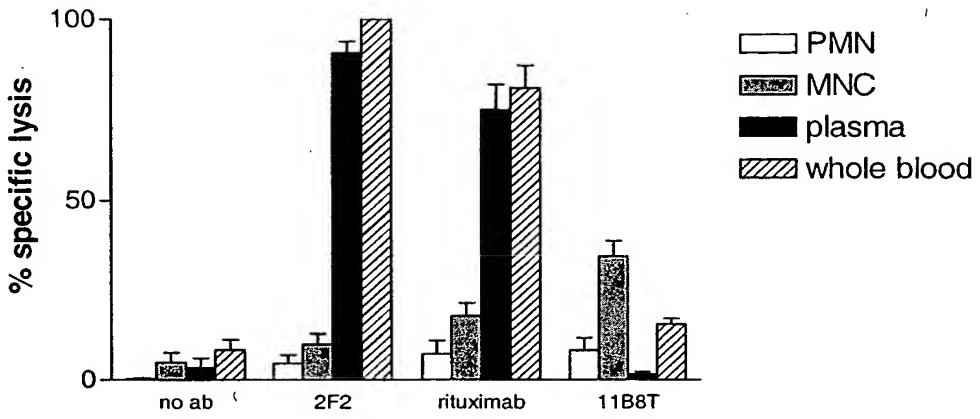

100
50
0
% specific lysis
no ab
2F2
rituximab
11B8T
PMN
MNC
plasma
whole blood

Fig 23

B-ALL

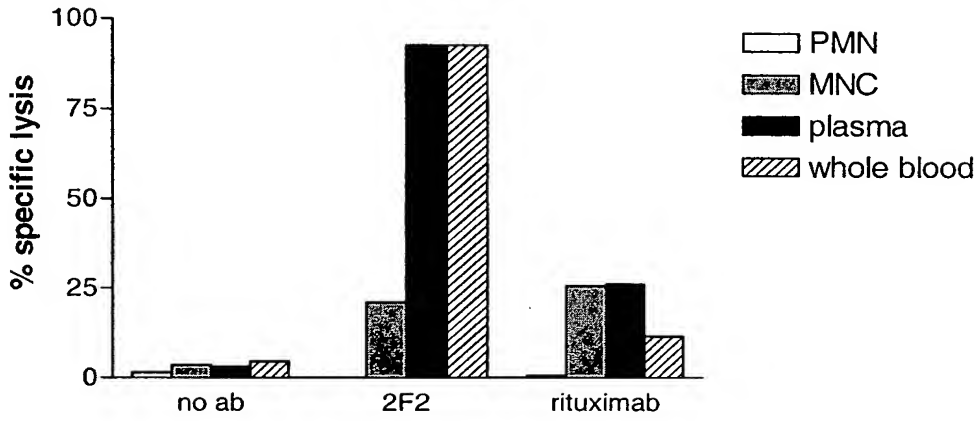

100
75
50
25
0
% specific lysis
no ab
2F2
rituximab
PMN
MNC
plasma
whole blood

Fig 24

FL

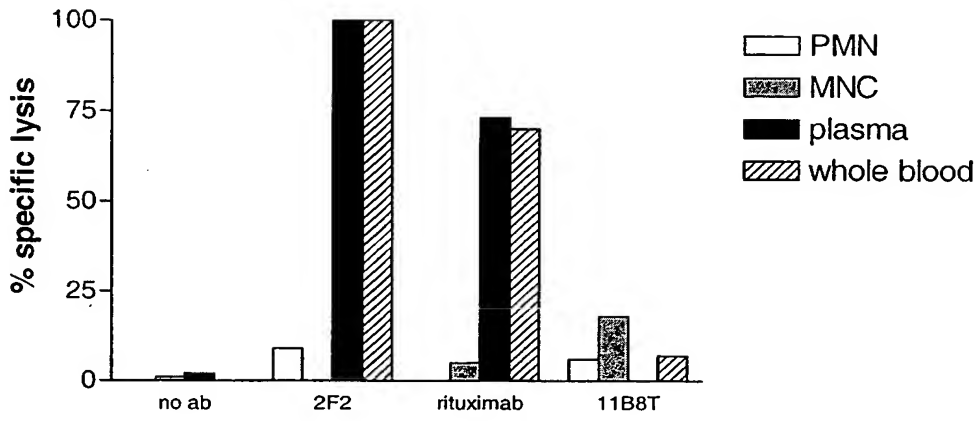

100
75
50
25
0
% specific lysis
no ab
2F2
rituximab
11B8T
PMN
MNC
plasma
whole blood

Fig 25

Mantle cell lymphoma

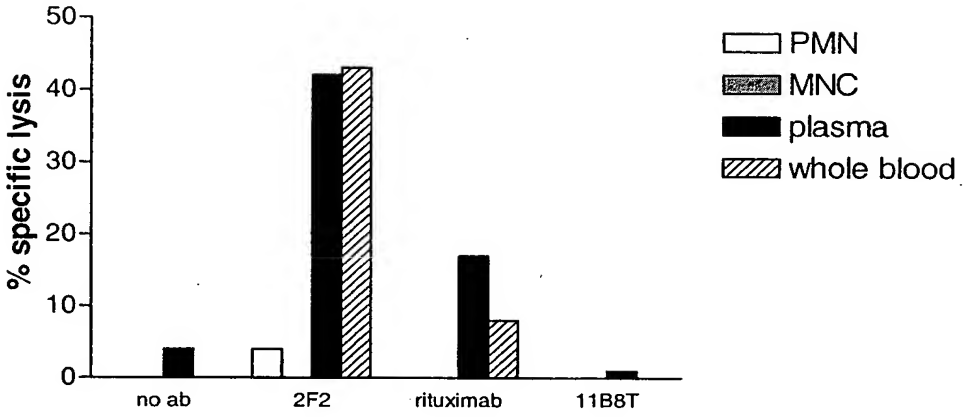


Fig 26

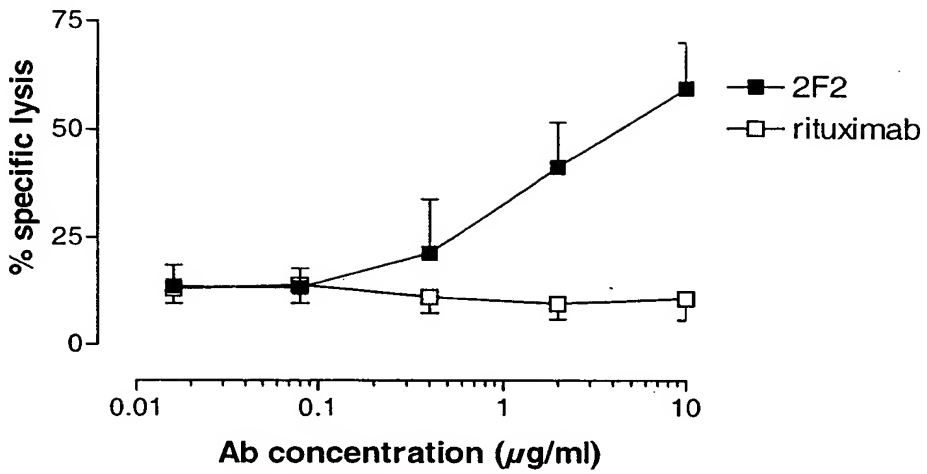

75
50
25
0
% specific lysis
0.01
0.1
1
10
Ab concentration (μg/ml)
2F2
rituximab

Fig 27

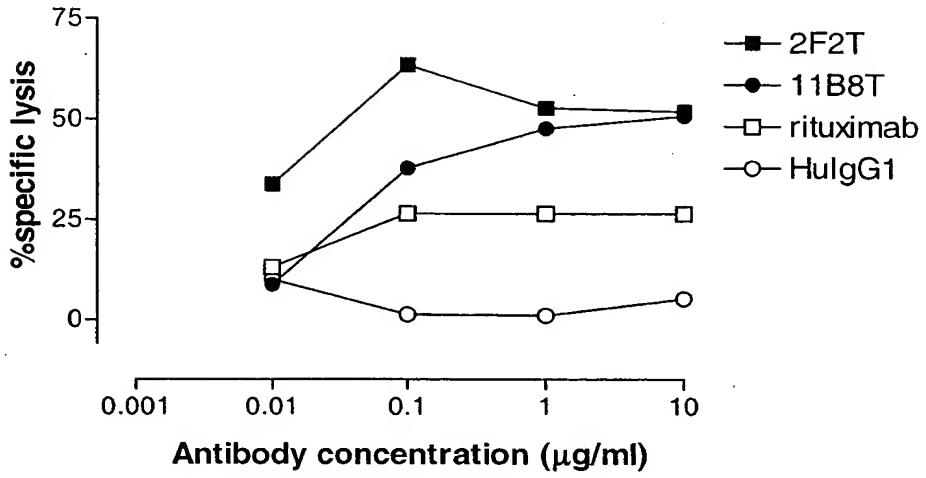
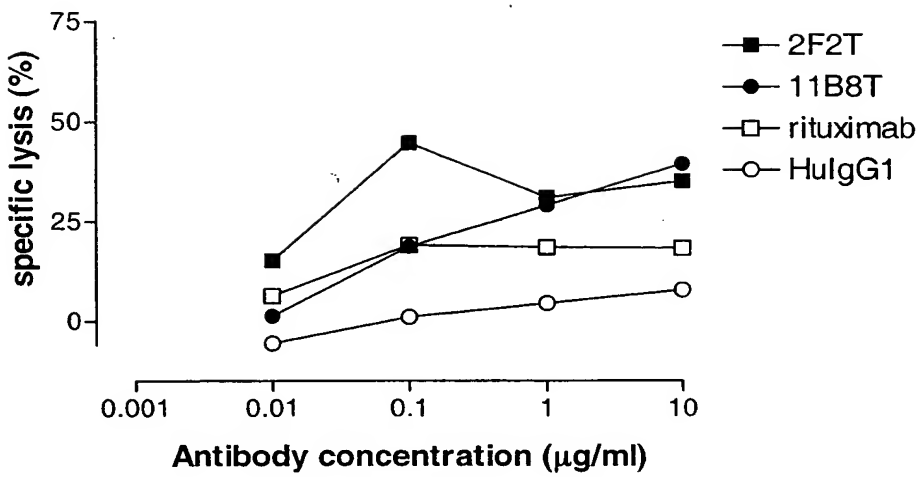
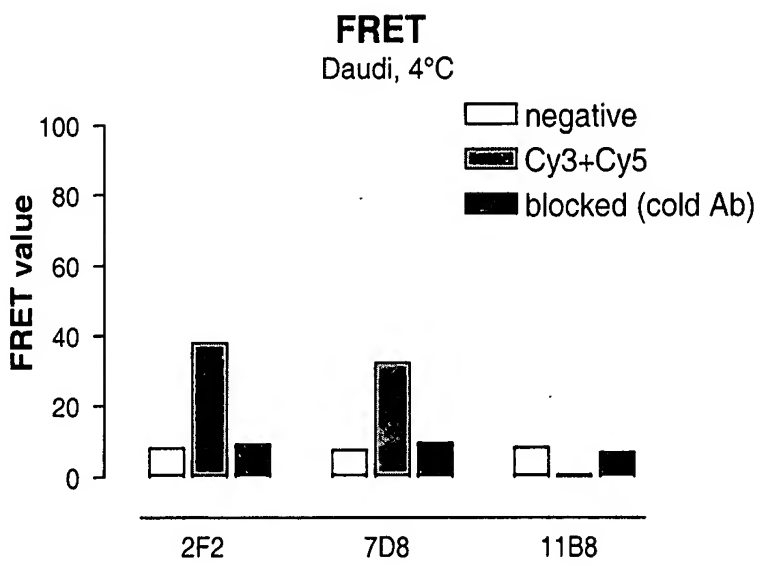

75
50
25
0
%specific lysis
0.001
0.01
0.1
1
10
Antibody concentration (μg/ml)
2F2T
11B8T
rituximab
HuIgG1

Fig 28


75
50
25
0
specific lysis (%)
0.001
0.01
0.1
1
10
Antibody concentration (µg/ml)
2F2T
11B8T
rituximab
HuIgG1



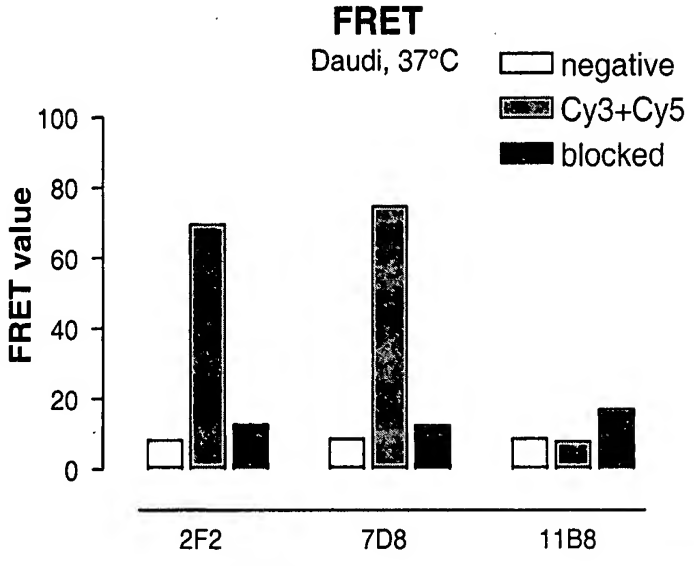


Fig 29A-C

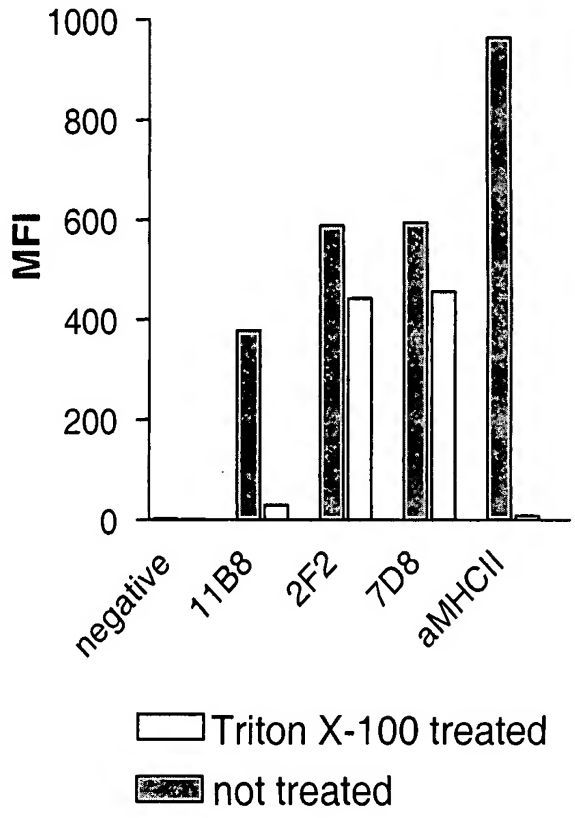


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Fig 30

Daudi

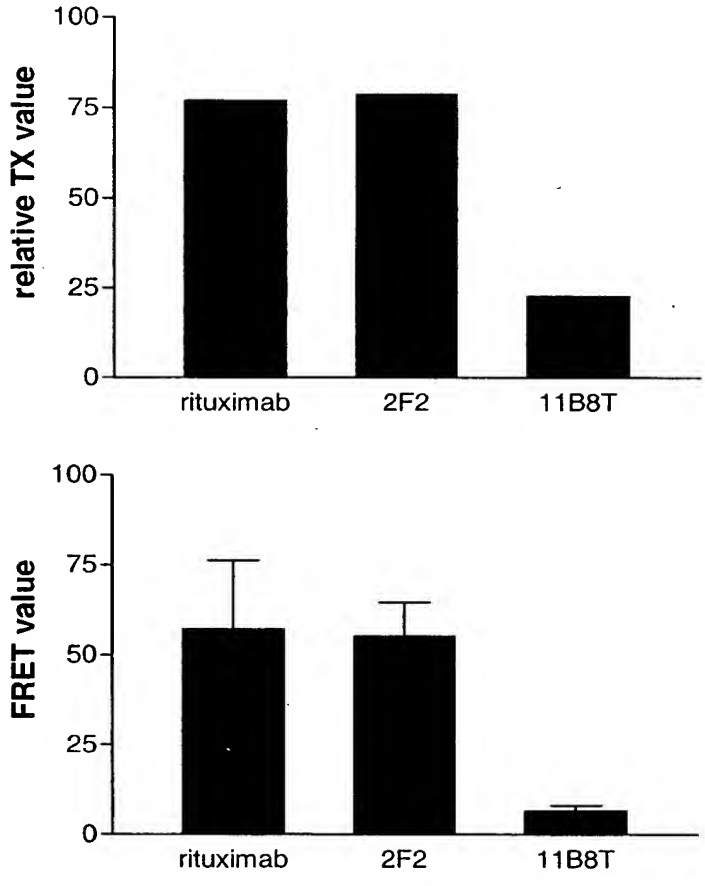

relative TX value
100
75
50
25
0
rituximab
2F2
11B8T
FRET value
100
75
50
25
0
rituximab
2F2
11B8T

Fig 31

Daudi

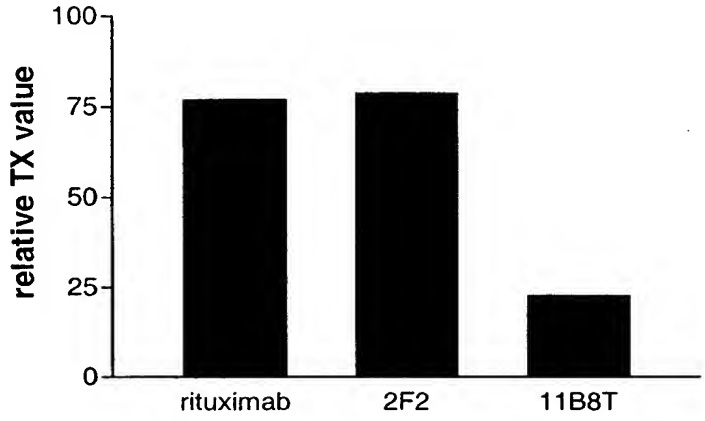
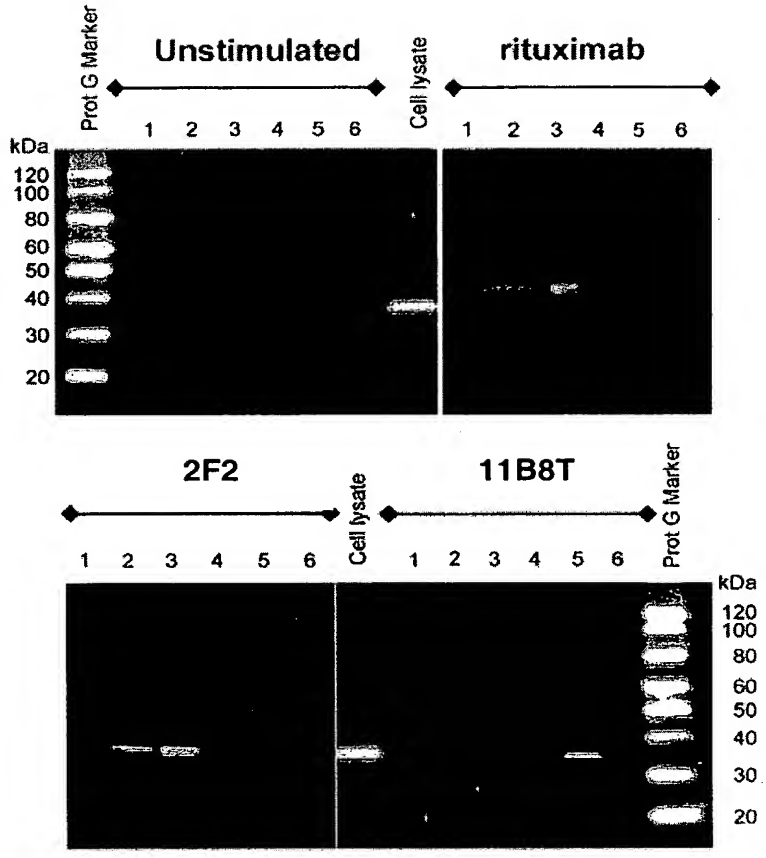


Fig 32


Prot G Marker
Unstimulated
Cell lysate
rituximab
1 2 3 4 5 6
1 2 3 4 5 6
kDa
120
100
80
60
50
40
30
20
2F2
Cell lysate
11B8T
Prot G Marker
1 2 3 4 5 6
1 2 3 4 5 6
kDa
120
100
80
60
50
40
30
20

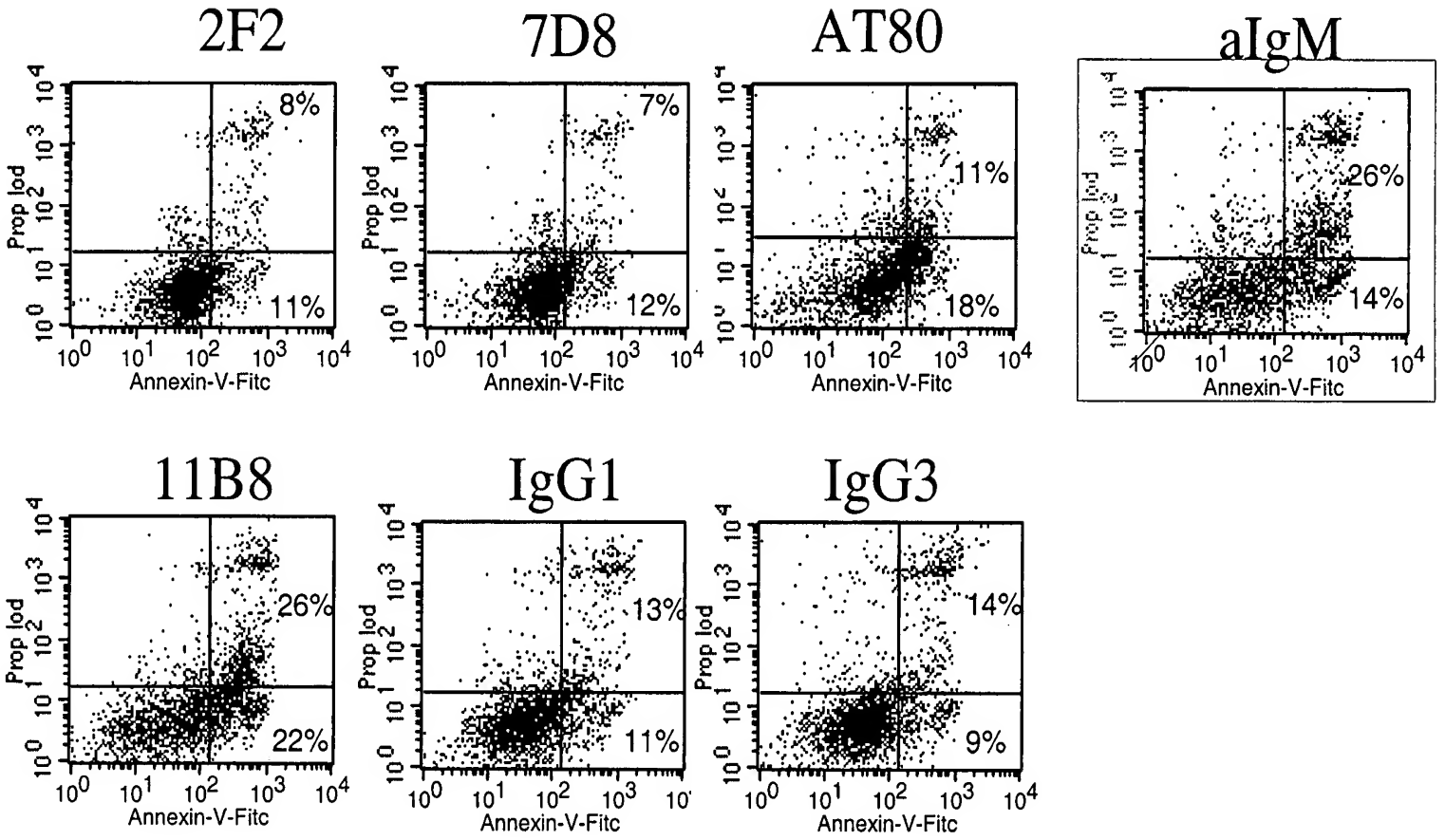


Fig 33A-G

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Fig 34

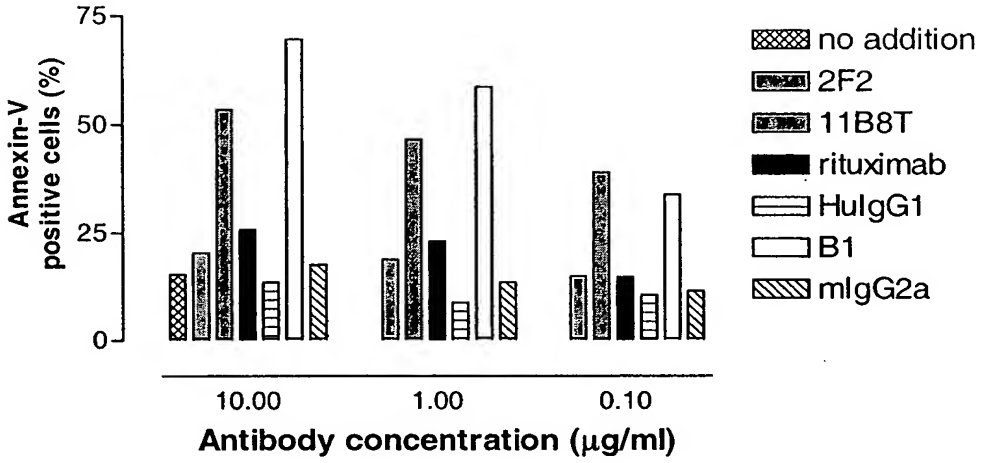
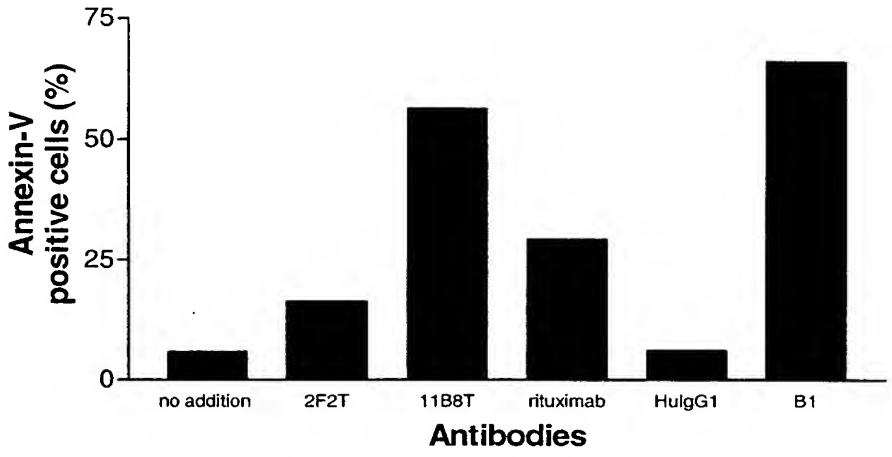
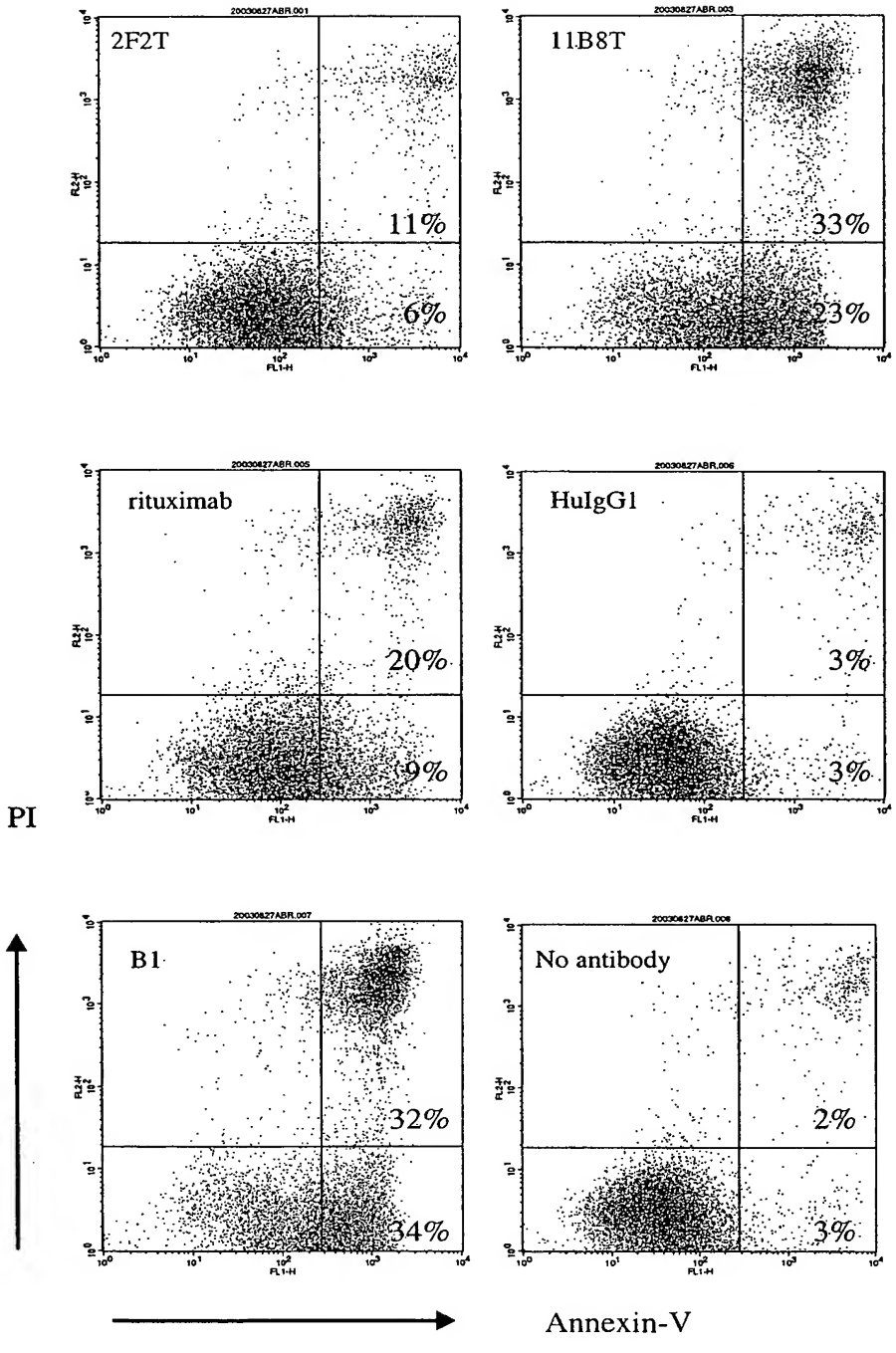

75
50
25
0
Annexin-V positive cells (%)
10.00
1.00
0.10
Antibody concentration (µg/ml)
no addition
2F2
11B8T
rituximab
HuIgG1
B1
mIgG2a

Fig 35A-B

A


75
50
25
0
Annexin-V positive cells (%)
no addition
2F2T
11B8T
rituximab
HulgG1
B1
Antibodies

B


2F2T
11%
6%
11B8T
33%
23%
rituximab
20%
9%
HuIgG1
3%
3%
B1
32%
34%
No antibody
2%
3%
PI
Annexin-V

Homotypic adhesion of Ramos cells.

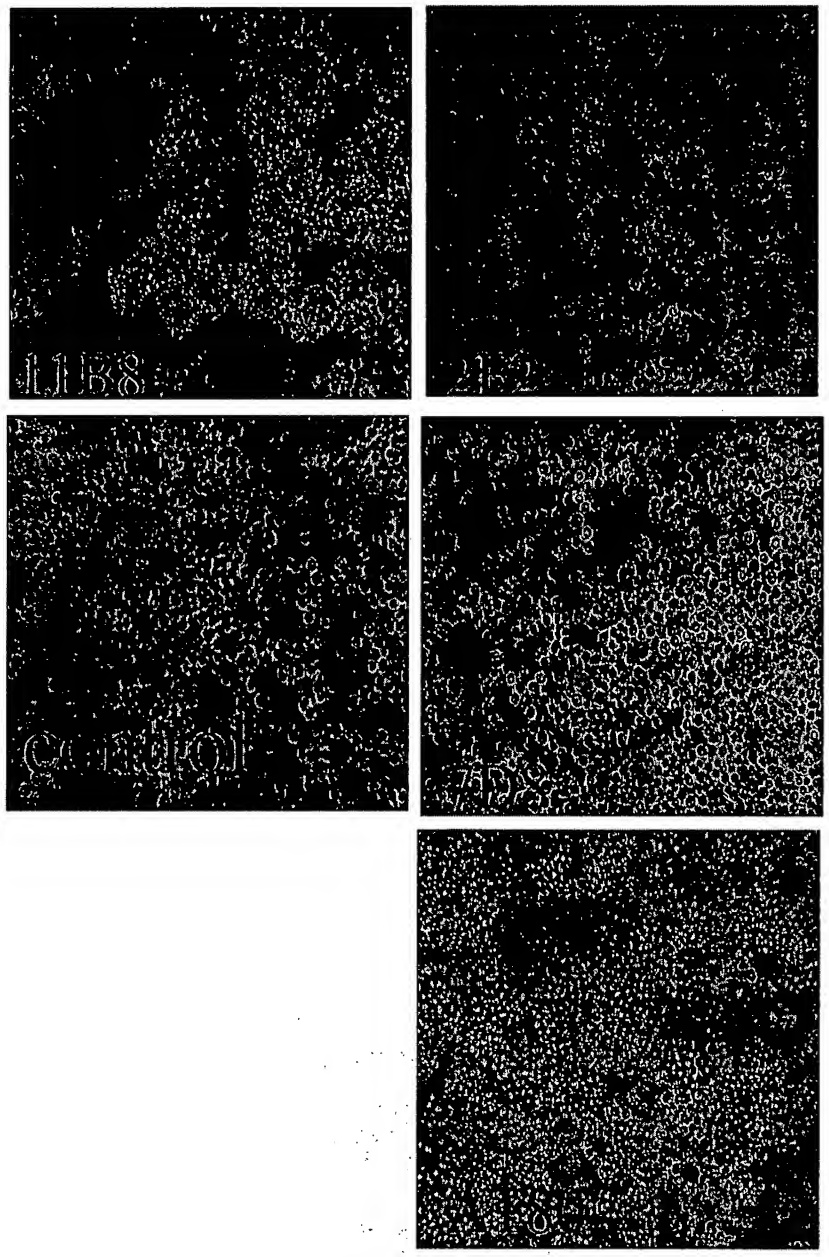
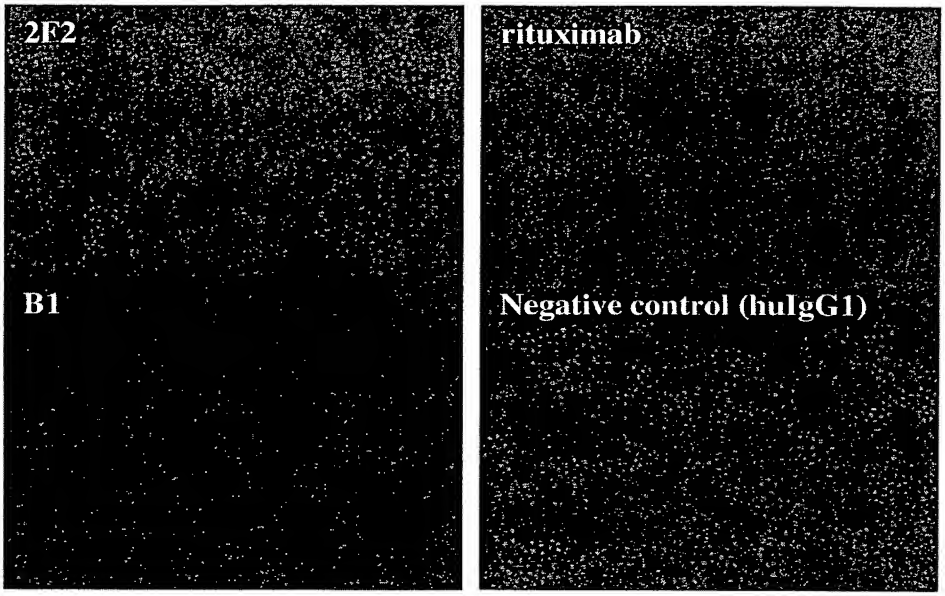


Fig 36A-E

App No.: Not Yet Assigned
Inventor: Jessica Teeling, et al.
Title: HUMAN MONOCLONAL ANTIBODIES AGAINST CD20
Docket No.: GMI-055

Fig 37



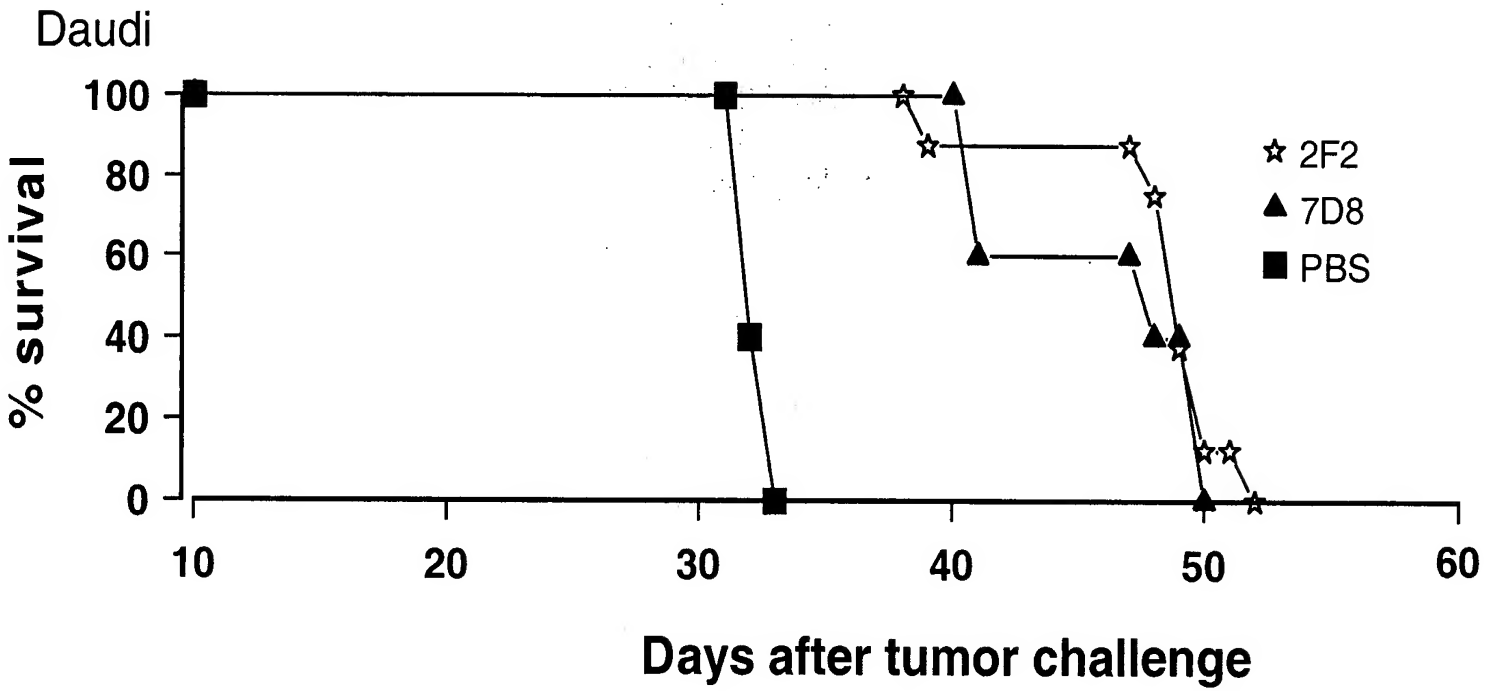


Fig 38

Fig 39

Tanoue

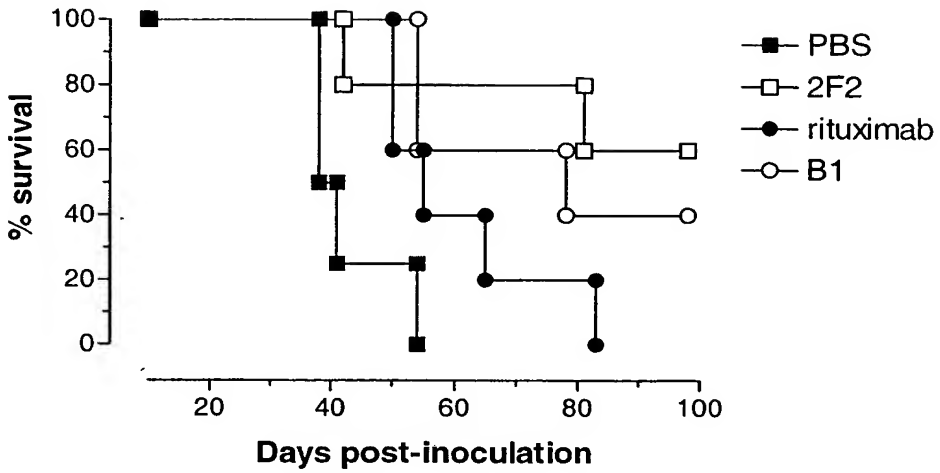


Fig 40

Daudi

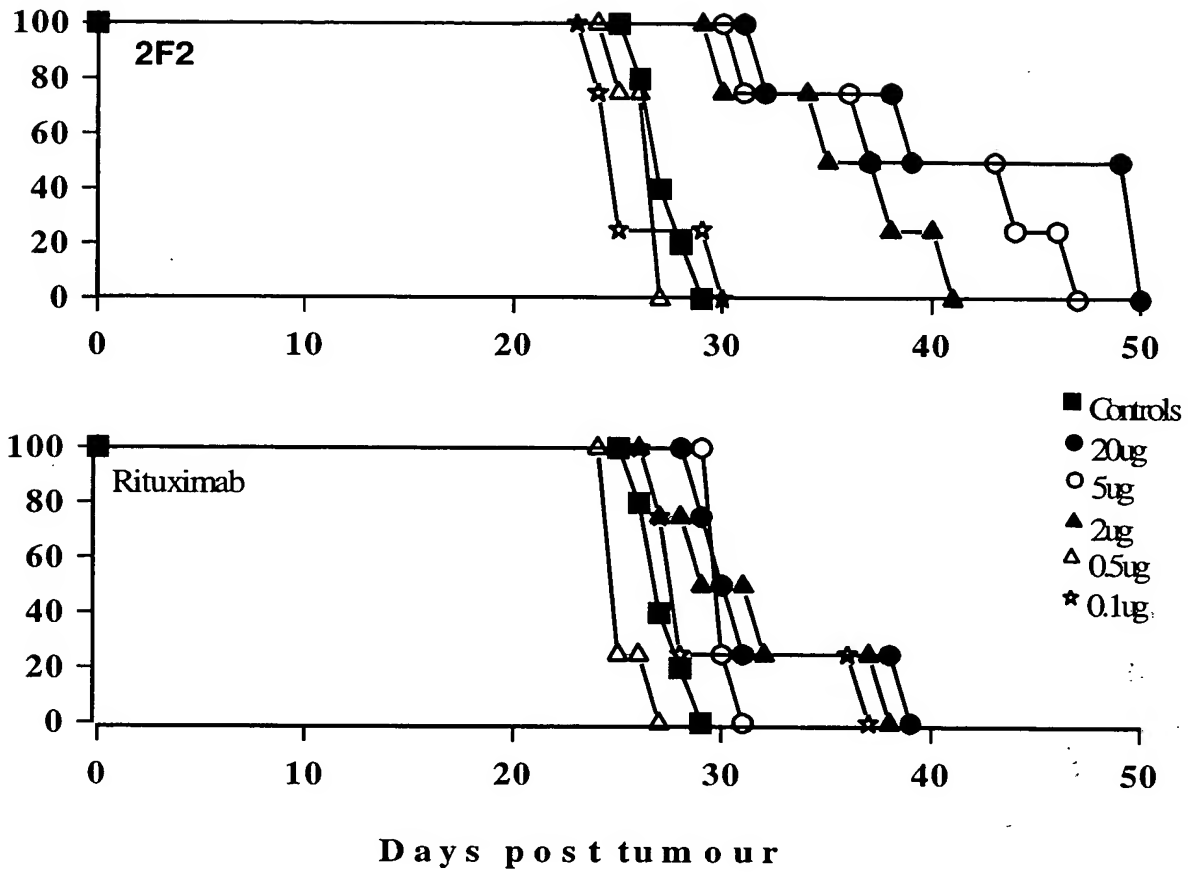

2F2
Rituximab
100
80
60
40
20
0
0
10
20
30
40
50
Controls
20ug
5ug
2ug
0.5ug
0.1ug
Days post tumour

Fig 41

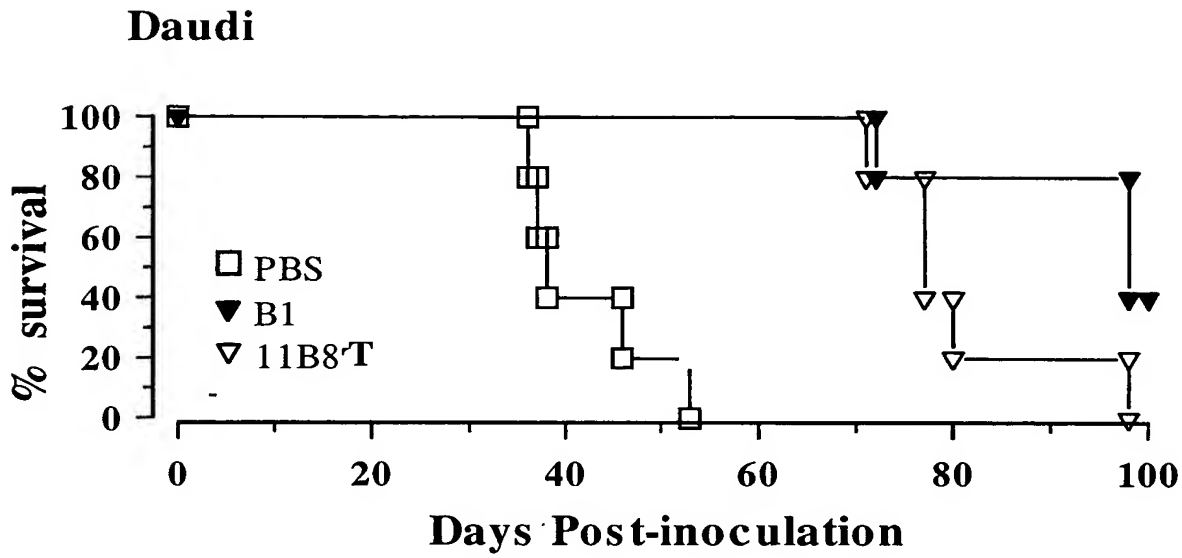
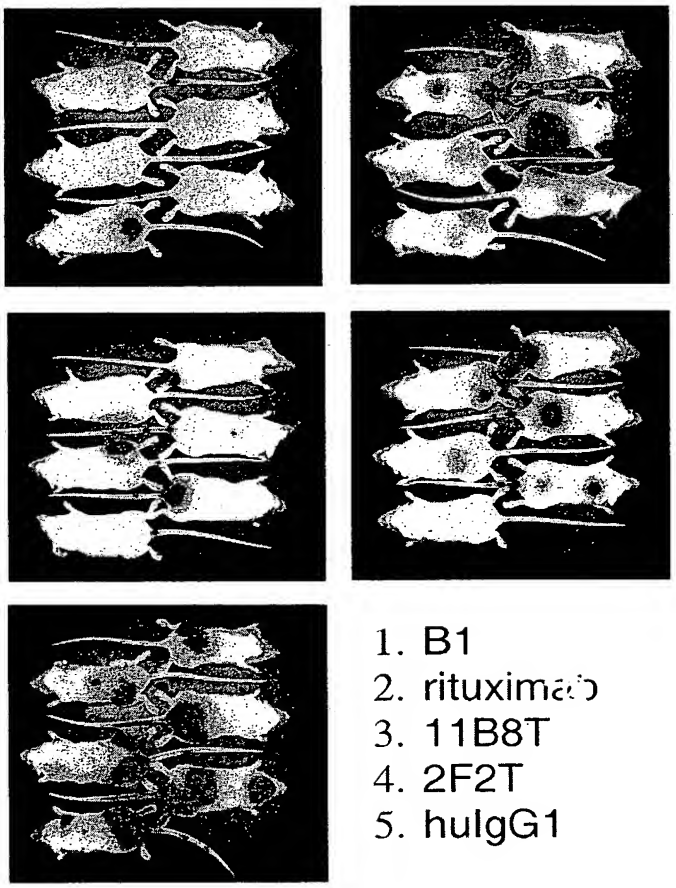

Daudi
100
80
60
40
20
0
% survival
PBS
B1
11B8-T
0
20
40
60
80
100
Days Post-inoculation

Fig 42



1. B1
2. rituximab
3. 11B8T
4. 2F2T
5. huIgG1

Fig 43

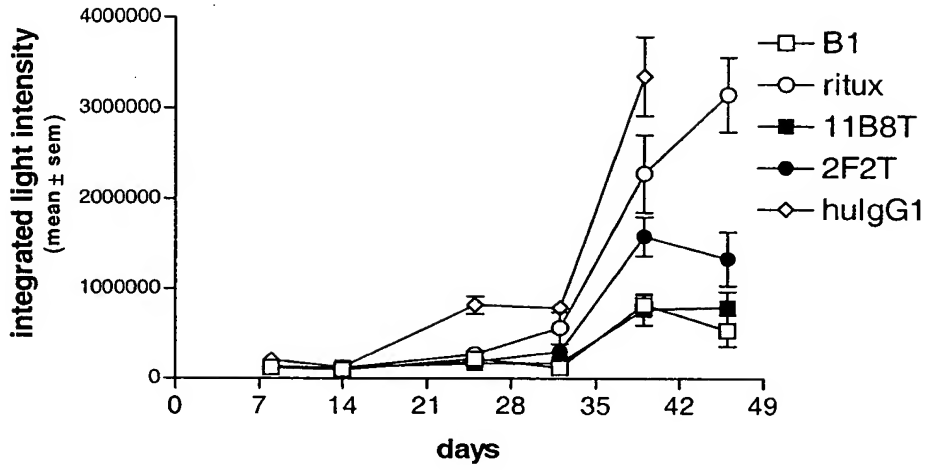

integrated light intensity
(mean ± sem)
4000000
3000000
2000000
1000000
0
0
7
14
21
28
35
42
49
days
B1
ritux
11B8T
2F2T
huIgG1

Fig 44A-C

Peripheral blood

2F2 (□)
rituximab (▼)

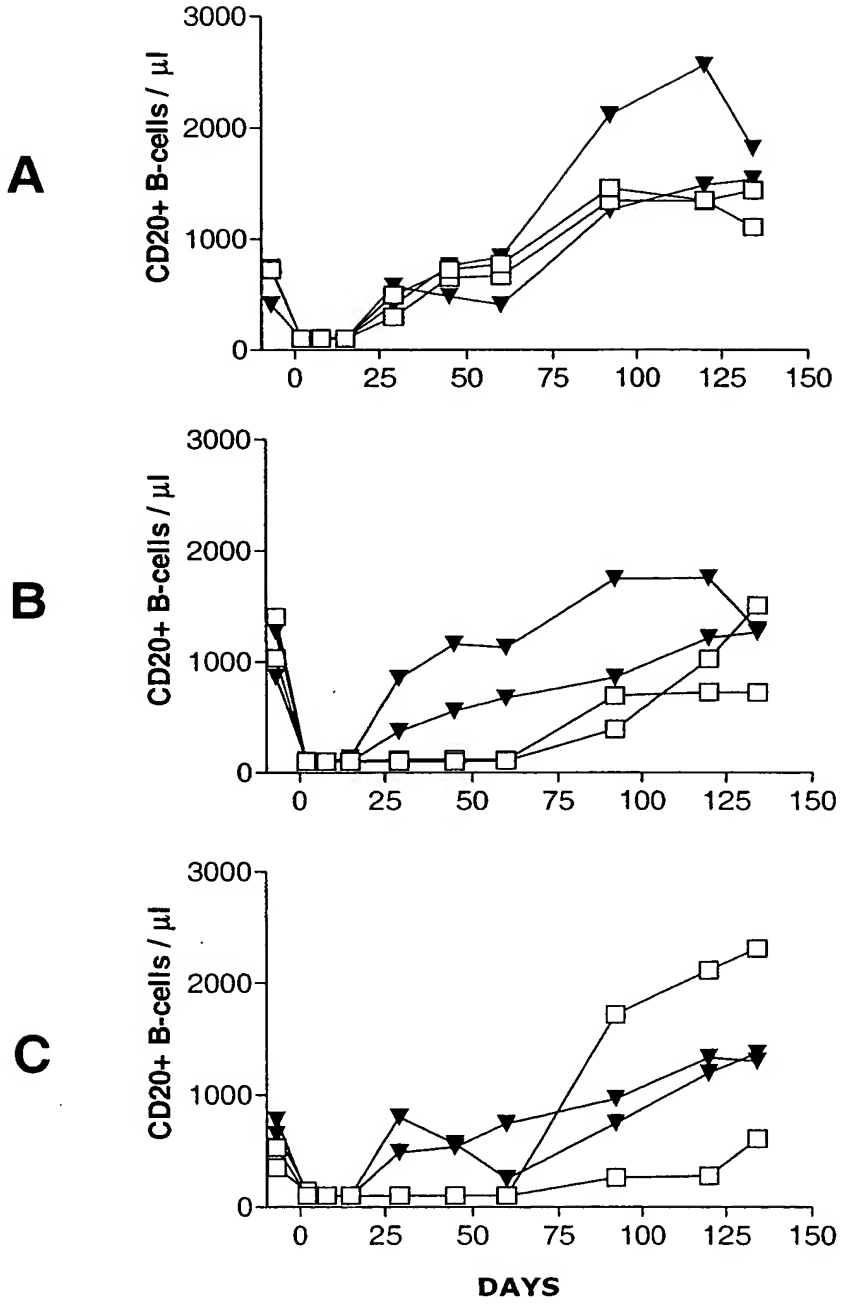


Fig 45A-C

Peripheral blood

2F2 (□)
rituximab (▼)

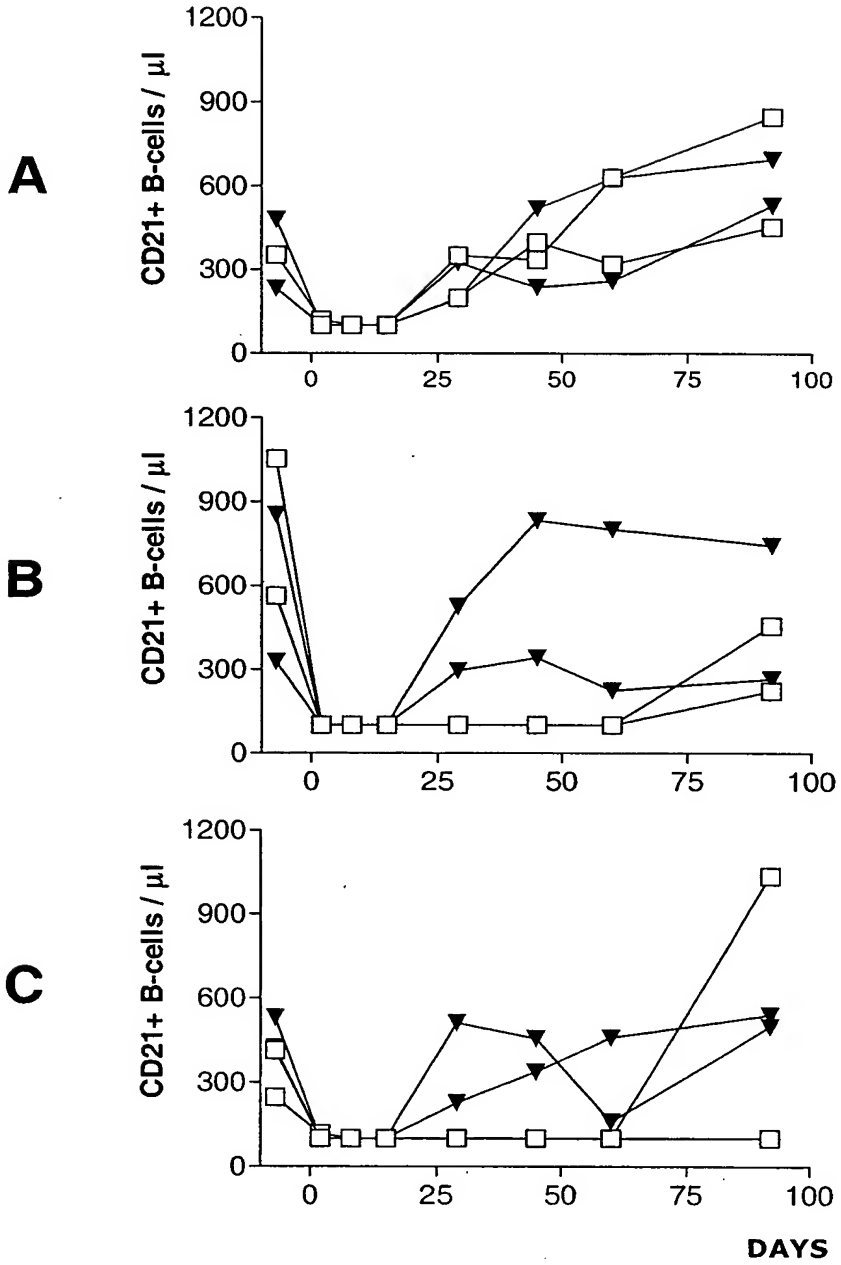


Fig 46A-C

Lymph node

2F2 (□)
rituximab (▼)

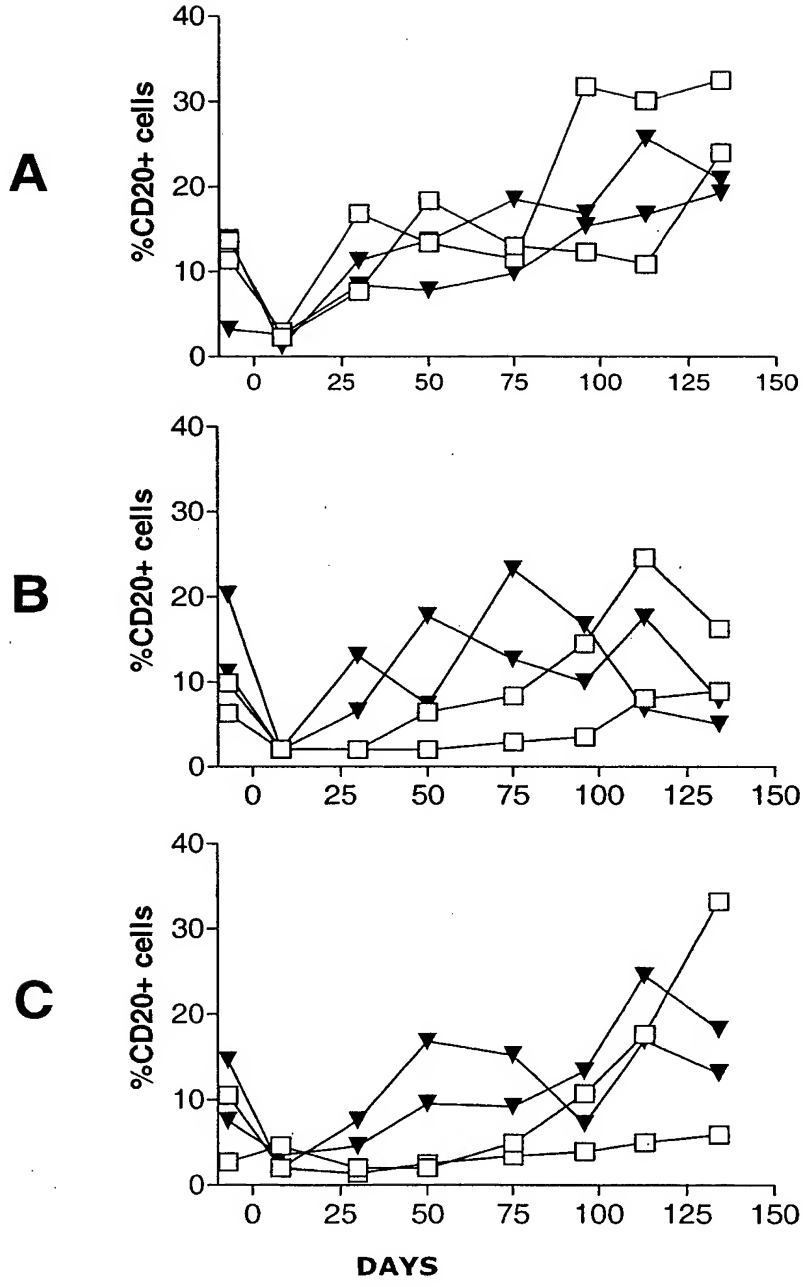


Fig 47A-C

Peripheral blood

2F2 (□)
rituximab (▼)

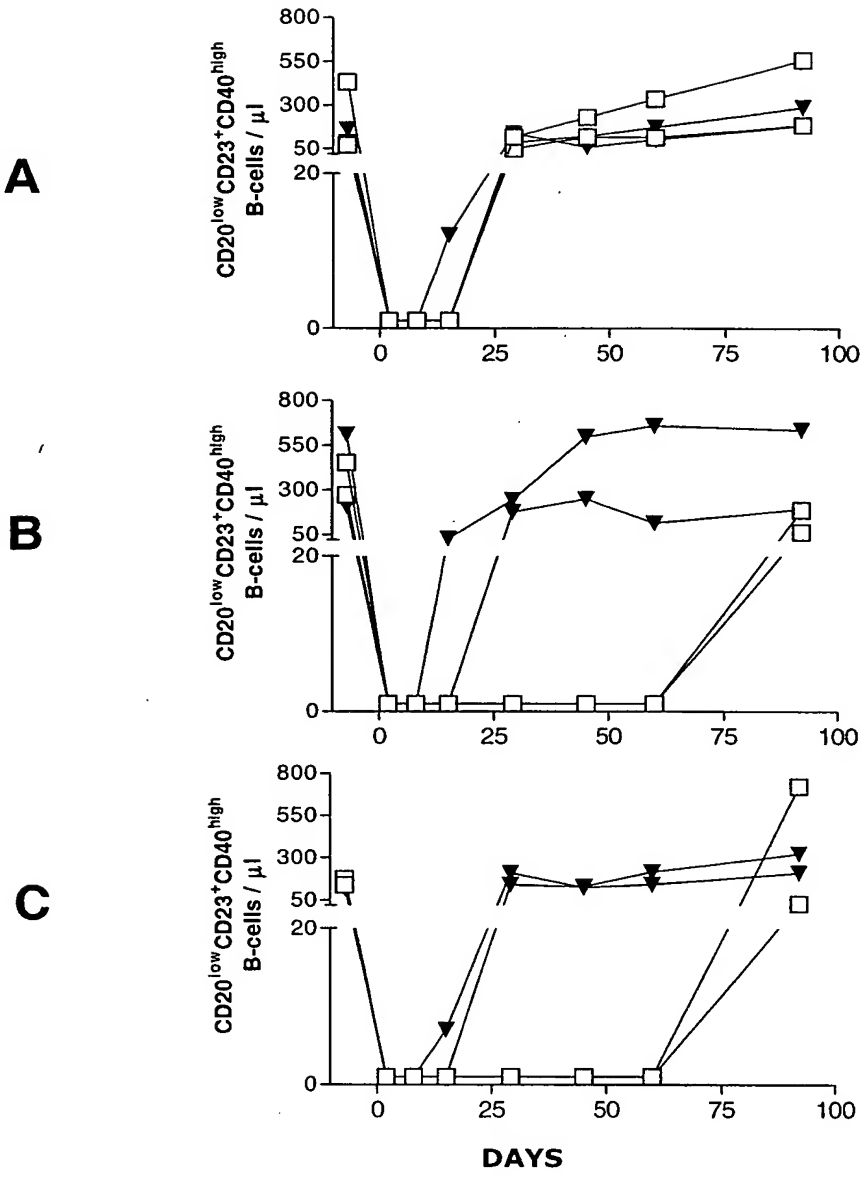
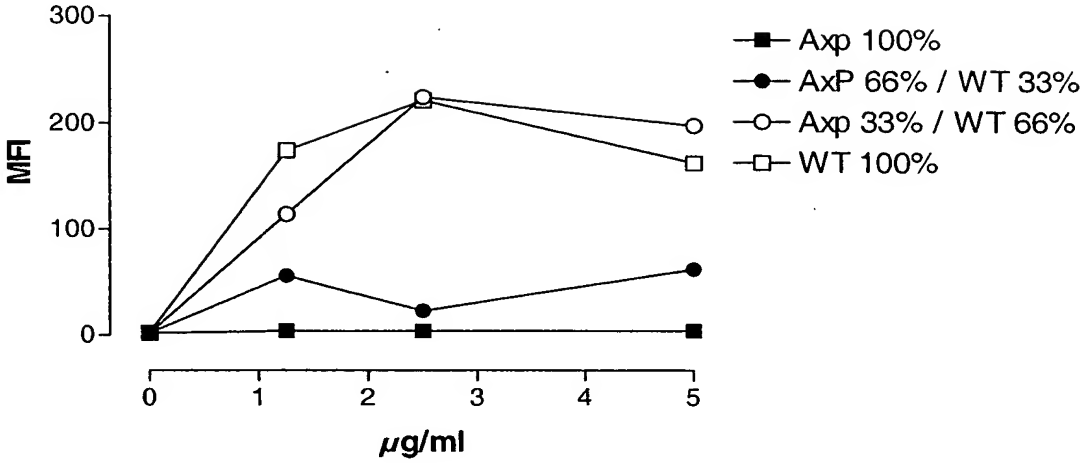


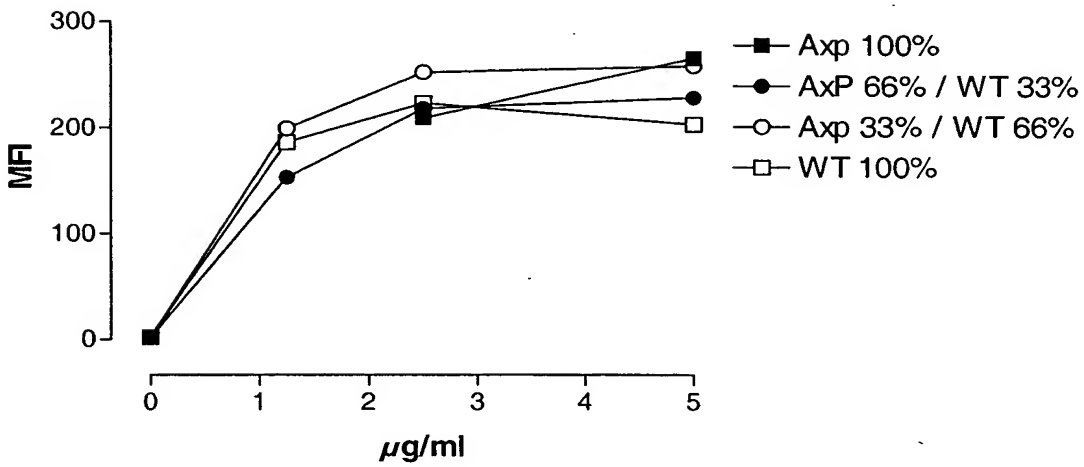
Fig 48A-E

A: rituximab

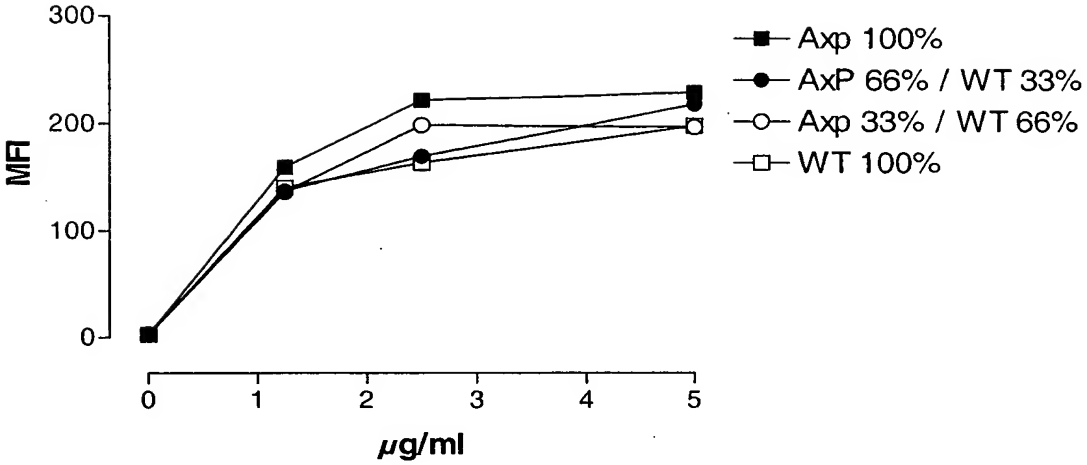
A



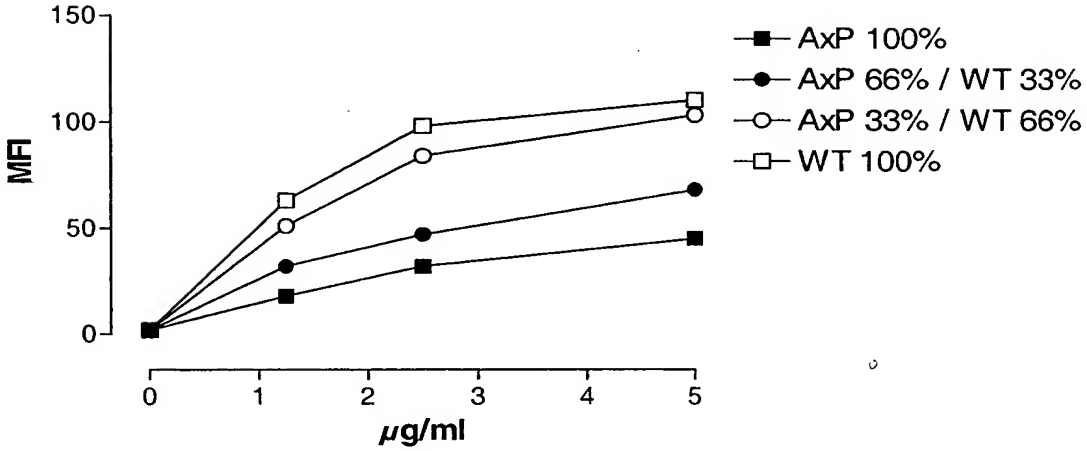
B



C


300
200
100
0
MFI
0
1
2
3
4
5
µg/ml
Axp 100%
AxP 66% / WT 33%
Axp 33% / WT 66%
WT 100%

D


150
100
50
0
MFI
0
1
2
3
4
5
µg/ml
AxP 100%
AxP 66% / WT 33%
AxP 33% / WT 66%
WT 100%

E

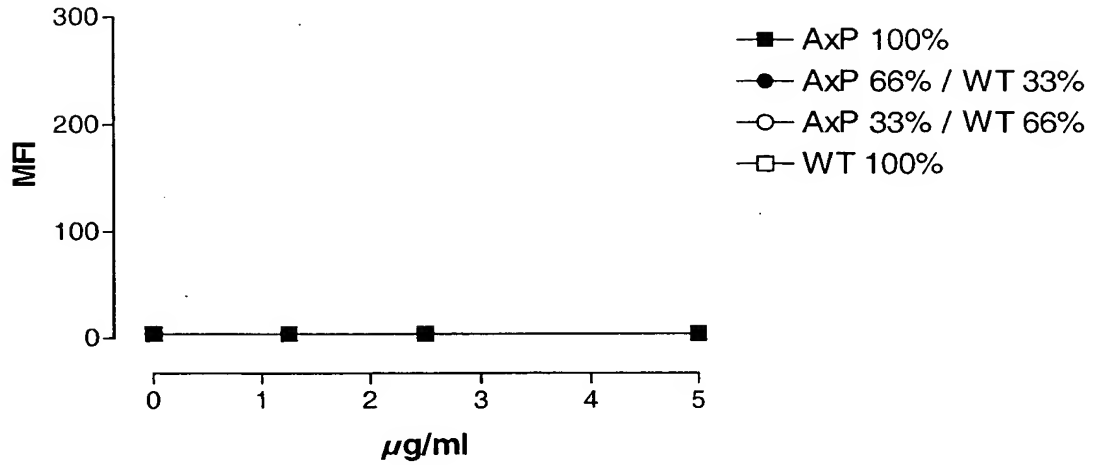
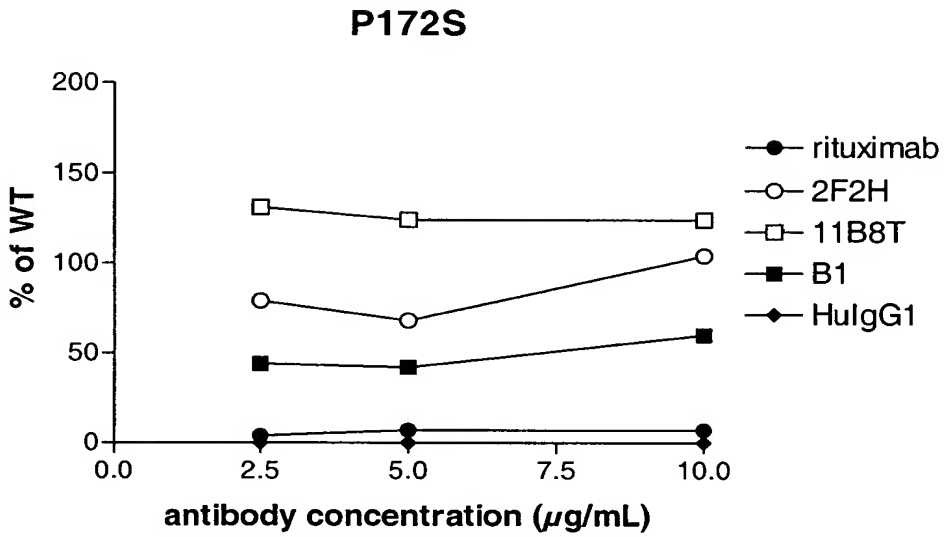
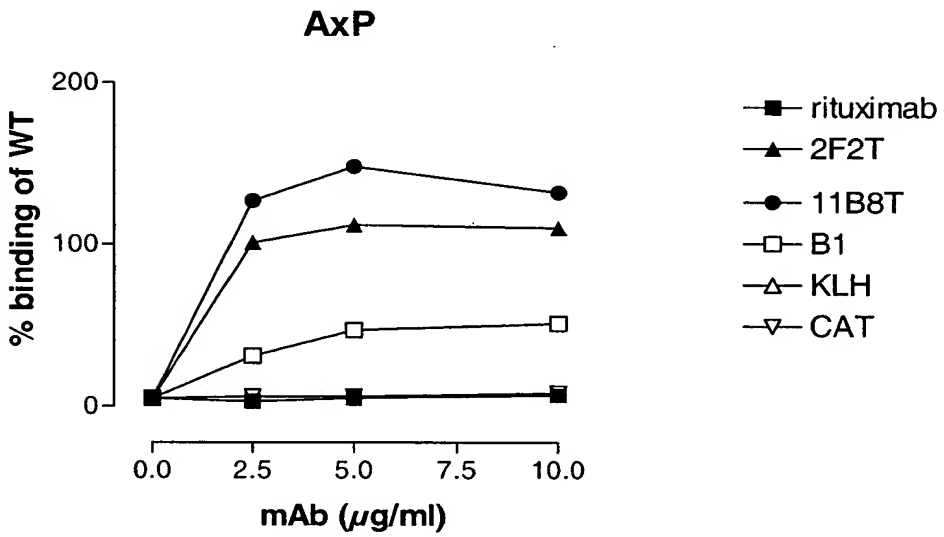

300
200
100
0
MFI
0
1
2
3
4
5
μg/ml
AxP 100%
AxP 66% / WT 33%
AxP 33% / WT 66%
WT 100%

Fig 49A-F

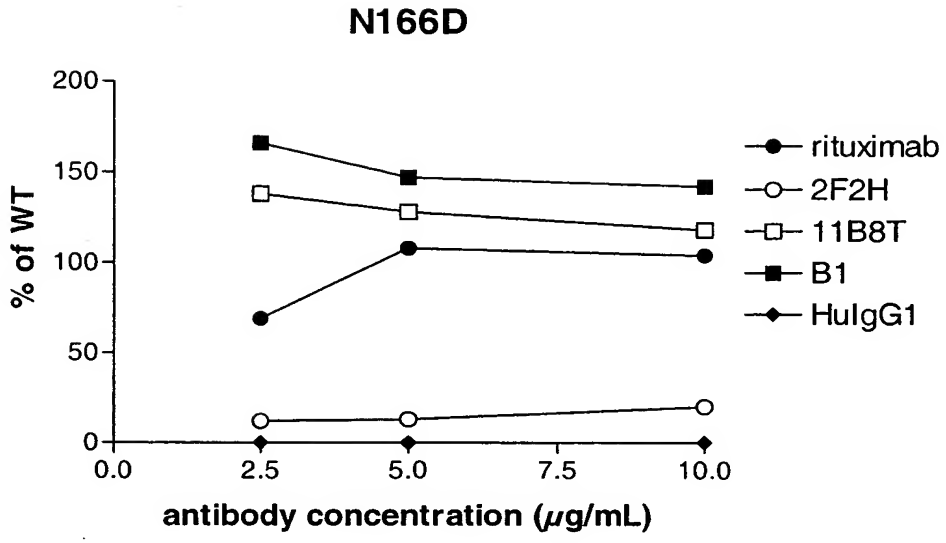
A


P172S
200
150
100
50
0
% of WT
0.0
2.5
5.0
7.5
10.0
antibody concentration (μg/mL)
rituximab
2F2H
11B8T
B1
HuIgG1

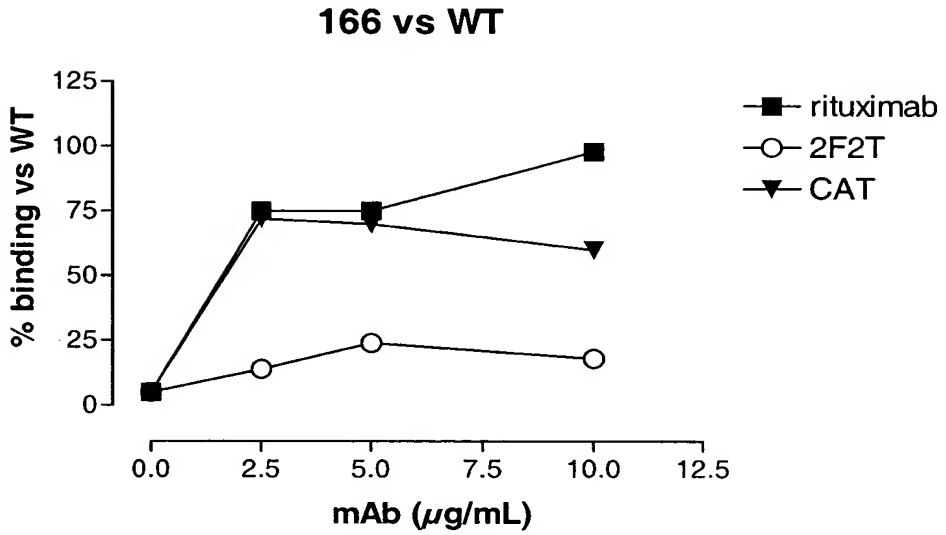
B


AxP
200
100
0
% binding of WT
0.0
2.5
5.0
7.5
10.0
mAb (μg/ml)
rituximab
2F2T
11B8T
B1
KLH
CAT

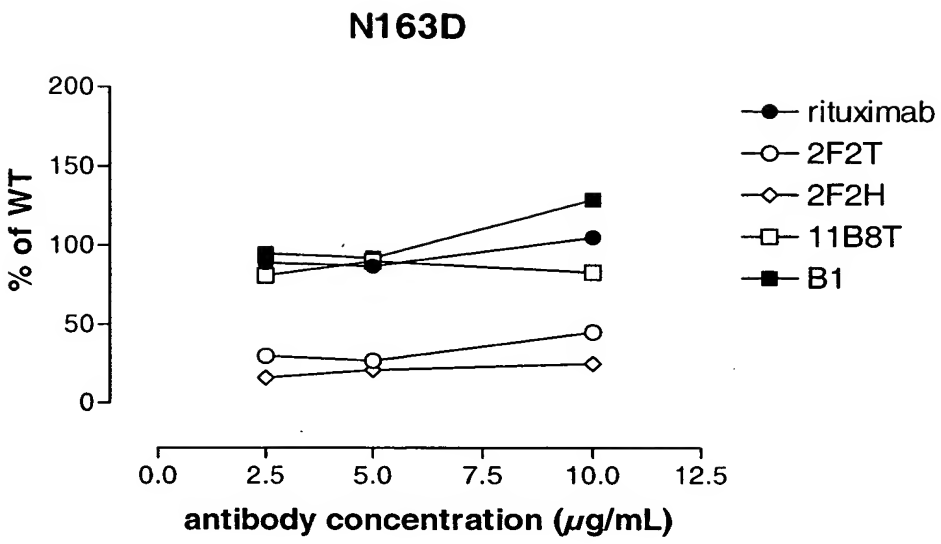
C


N166D
200
150
100
50
0
% of WT
0.0
2.5
5.0
7.5
10.0
antibody concentration (μg/mL)
rituximab
2F2H
11B8T
B1
HuIgG1

D


166 vs WT
125
100
75
50
25
0
% binding vs WT
0.0
2.5
5.0
7.5
10.0
12.5
mAb (μg/mL)
rituximab
2F2T
CAT

E


N163D
200
150
100
50
0
% of WT
0.0
2.5
5.0
7.5
10.0
12.5
antibody concentration (μg/mL)
rituximab
2F2T
2F2H
11B8T
B1

F

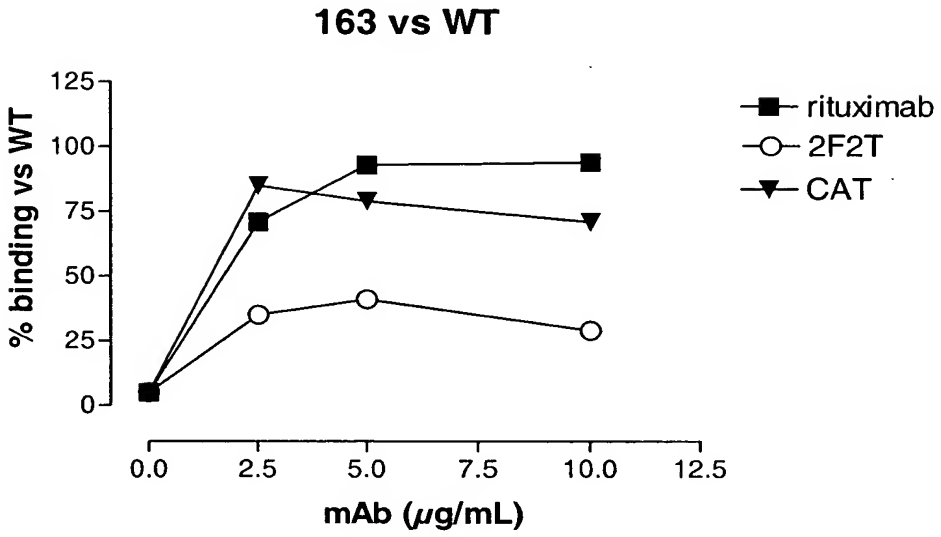

163 vs WT
125
100
75
50
25
0
% binding vs WT
0.0
2.5
5.0
7.5
10.0
12.5
mAb (μg/mL)
rituximab
2F2T
CAT

Fig 50

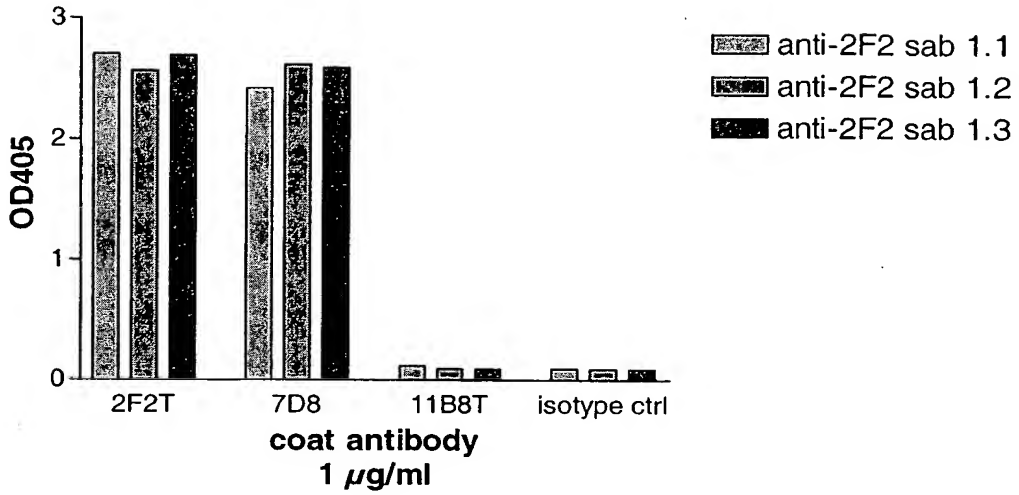
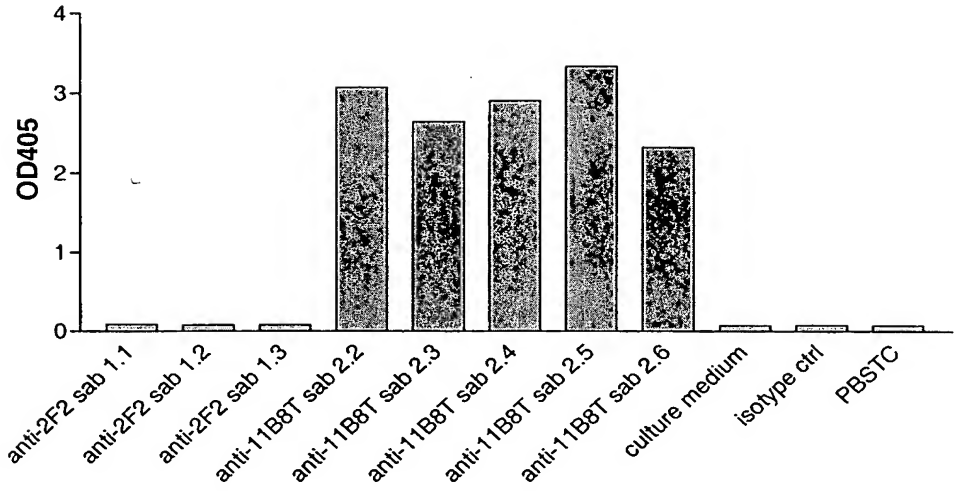
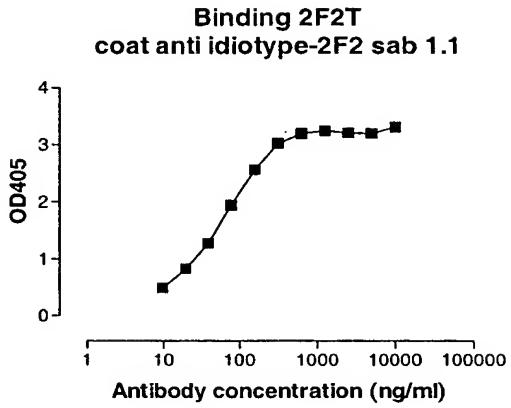

3
2
1
0
OD405
2F2T
7D8
11B8T
isotype ctrl
coat antibody
1 µg/ml
anti-2F2 sab 1.1
anti-2F2 sab 1.2
anti-2F2 sab 1.3

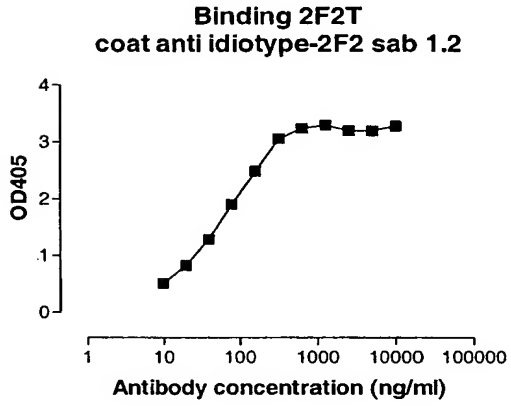
Fig 51



Coating 2 μg/ml 11B8T
Anti-idiotype antibody 1 μg/ml

Fig 52


Binding 2F2T
coat anti idiotype-2F2 sab 1.1
OD405
0
1
2
3
4
1
10
100
1000
10000
100000
Antibody concentration (ng/ml)


Binding 2F2T
coat anti idiotype-2F2 sab 1.2
OD405
0
1
2
3
4
1
10
100
1000
10000
100000
Antibody concentration (ng/ml)

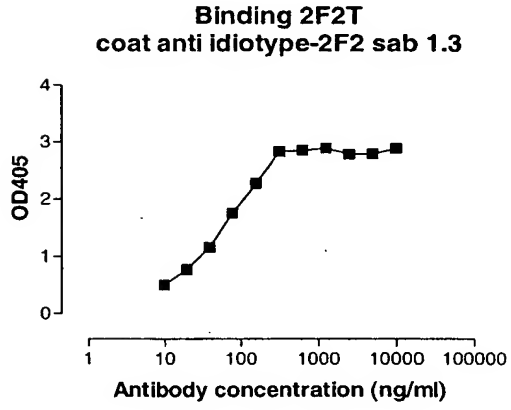

Binding 2F2T
coat anti idiotype-2F2 sab 1.3
OD405
0
1
2
3
4
1
10
100
1000
10000
100000
Antibody concentration (ng/ml)

Fig 53

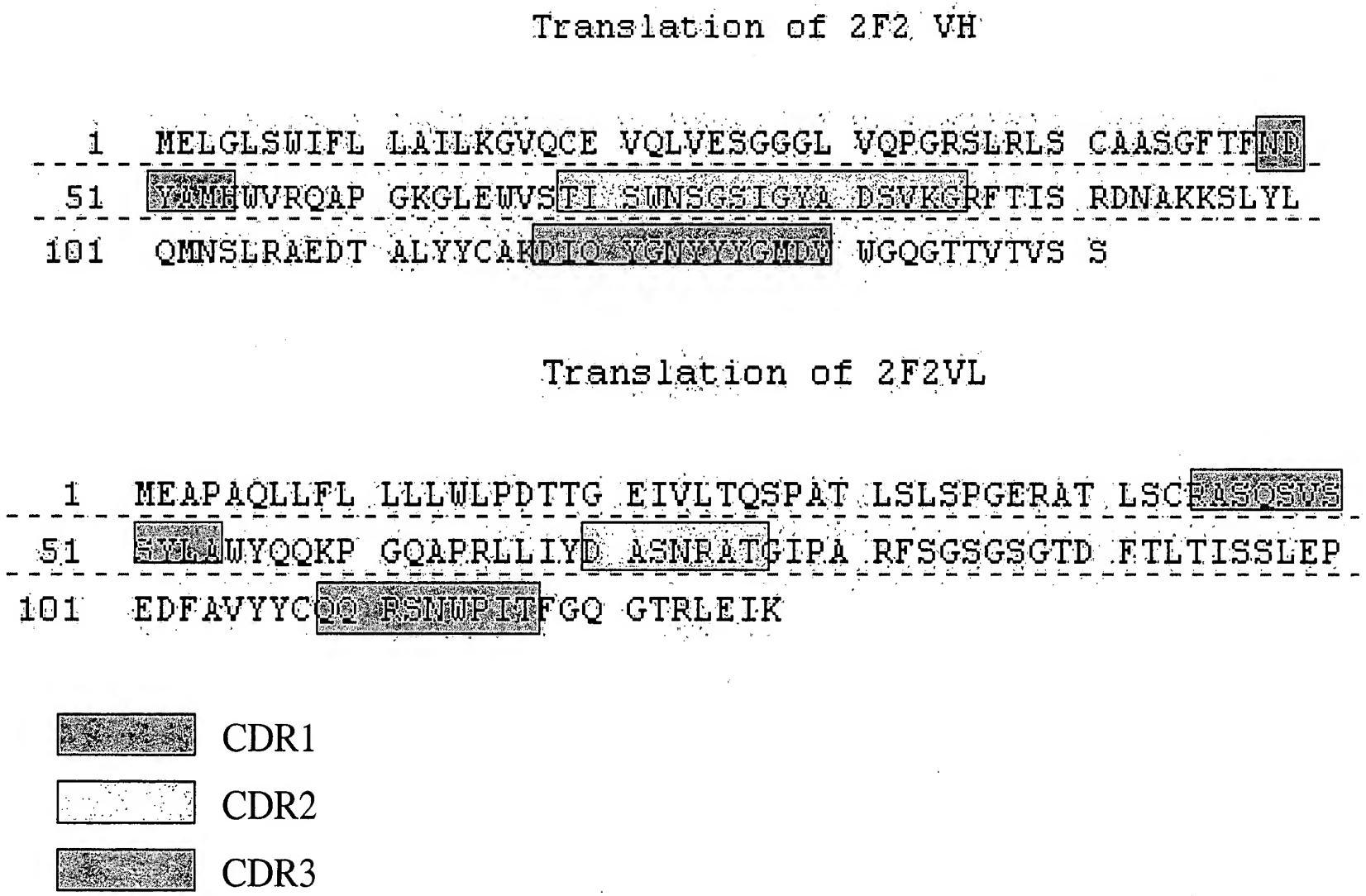


Fig 54

2F2 VH

```
  1  ATGGAG TTGGGA CTGAGC TGGATT TTCCTT TTGGCT ATTTTA AAAGGT GTCCAG
 55  TGTGAA GTGCAG CTGGTG GAGTCT GGGGGA GGCTTG GTACAG CCTGGC AGGTCC
109  CTGAGA CTCTCC TGTGCA GCCTCT GGATTC ACCTTT AATGAT TATGCC ATGCAC
163  TGGGTC CGGCAA GCTCCA GGGAAG GGCCTG GAGTGG GTCTCA ACTATT AGTTGG
217  AATAGT GGTTCC ATAGGC TATGCG GACTCT GTGAAG GGCCGA TTCACC ATCTCC
271  AGAGAC AACGCC AAGAAG TCCCTG TATCTG CAAATG AACAGT CTGAGA GCTGAG
325  GACACG GCCTTG TATTAC TGTGCA AAAGAT ATACAG TACGGC AACTAC TACTAC
379  GGTATG GACGTC TGGGGC CAAGGG ACCACG GTCACC GTCTCC TCAG
```

2F2VL

```
  1  ATGGAA GCCCCA GCTCAG CTTCTC TTCCTC CTGCTA CTCTGG CTCCCA GATACC
 55  ACCGGA GAAATT GTGTTG ACACAG TCTCCA GCCACC CTGTCT TTGTCT CCAGGG
109  GAAAGA GCCACC CTCTCC TGCAGG GCCAGT CAGAGT GTTAGC AGCTAC TTAGCC
163  TGGTAC CAACAG AAACCT GGCCAG GCTCCC AGGCTC CTCATC TATGAT GCATCC
217  AACAGG GCCACT GGCATC CCAGCC AGGTTC AGTGGC AGTGGG TCTGGG ACAGAC
271  TTCACT CTCACC ATCAGC AGCCTA GAGCCT GAAGAT TTTGCA GTTTAT TACTGT
325  CAGCAG CGTAGC AACTGG CCGATC ACCTTC GGCCAA GGGACA CGACTG GAGATT
379  AAAC
```

App No.: Not Yet Assigned
Inventor: Jessica Teeling, et al.
Title: HUMAN MONOCLONAL ANTIBODIES AGAINST CD20
Docket No.: GMI-055

Fig 55

Translation of 7D8VH

```
  1  MELGLSWIFL LAILKGVQCE VQLVESGGGL VQPDRSLRLS CAASGFTFHD
 51  YAMHWVRQAP GKGLEWVSTI SWNSGTIGYA DSVKGRFTIS RDNAKNSLYL
101  QMNSLRAEDT ALYYCAKDIQ YGNYYYGMDV WGQGTTVTVS S
```

Translation of 7D8VL

```
  1  MEAPAQLLFL LLLWLPDTTG EIVLTQSPAT LSLSPGERAT LSCRASQSVS
 51  SYLAWYQQKP GQAPRLLIYD ASNRATGIPA RFSGSGSGTD FTLTISSLEP
101  EDFAVYYCQQ RSNWPITFGQ GTRLEIK
```

CDR1

CDR2

CDR3

App No.: Not Yet Assigned
Inventor: Jessica Teeling, et al.
Title: HUMAN MONOCLONAL ANTIBODIES AGAINST CD20
Docket No.: GMI-055

Fig 56

7D8VH

```
  1  ATGGAG TTGGGA CTGAGC TGGATT TTCCTT TTGGCT ATTTTA AAAGGT GTCCAG
 55  TGTGAA GTGCAG CTGGTG GAGTCT GGGGGA GGCTTG GTACAG CCTGAC AGGTCC
109  CTGAGA CTCTCC TGTGCA GCCTCT GGATTC ACCTTT CATGAT TATGCC ATGCAC
163  TGGGTC CGGCAA GCTCCA GGGAAG GGCCTG GAGTGG GTCTCA ACTATT AGTTGG
217  AATAGT GGTACC ATAGGC TATGCG GACTCT GTGAAG GGCCGA TTCACC ATCTCC
271  AGAGAC AACGCC AAGAAC TCCCTG TATCTG CAAATG AACAGT CTGAGA GCTGAG
325  GACACG GCCTTG TATTAC TGTGCA AAAGAT ATACAG TACGGC AACTAC TACTAC
379  GGTATG GACGTC TGGGGC CAAGGG ACCACG GTCACC GTCTCC TCAG
```

7D8VL

```
  1  ATGGAA GCCCCA GCTCAG CTTCTC TTCCTC CTGCTA CTCTGG CTCCCA GATACC
 55  ACCGGA GAAATT GTGTTG ACACAG TCTCCA GCCACC CTGTCT TTGTCT CCAGGG
109  GAAAGA GCCACC CTCTCC TGCAGG GCCAGT CAGAGT GTTAGC AGCTAC TTAGCC
163  TGGTAC CAACAG AAACCT GGCCAG GCTCCC AGGCTC CTCATC TATGAT GCATCC
217  AACAGG GCCACT GGCATC CCAGCC AGGTTC AGTGGC AGTGGG TCTGGG ACAGAC
271  TTCACT CTCACC ATCAGC AGCCTA GAGCCT GAAGAT TTTGCA GTTTAT TACTGT
325  CAGCAG CGTAGC AACTGG CCGATC ACCTTC GGCCAA GGGACA CGACTG GAGATT
379  AAAC
```

App No.: Not Yet Assigned
Inventor: Jessica Teeling, et al.
Title: HUMAN MONOCLONAL ANTIBODIES AGAINST CD20
Docket No.: GMI-055

Fig 57

Translation of VHCD2011B8

```
  1  MELGLSWVFL VAILKGVQCE VQLVQSGGGL VHPGGSLRLS CTGSGFTFSY
 51  HAMHWVRQAP GKGLEWVSII GTGGVTYYAD SVKGRFTISR DNVKNSLYLQ
101  MNSLRAEDMA VYYCARDYYG AGSFYDGLYG MDVWGQGTTV TVSS
```

Translation of VLCD2011B8

```
  1  MEAPAQLLFL LLLWLPDTTG EIVLTQSPAT LSLSPGERAT LSCRASQSVS
 51  SYLAWYQQKP GQAPRLLIYD ASNRATGIPA RFSGSGSGTD FTLTISSLEP
101  EDFAVYYCQQ RSDWPLTFGG GTKVEIK
```

CDR1

CDR2

CDR3

App No.: Not Yet Assigned
Inventor: Jessica Teeling, et al.
Title: HUMAN MONOCLONAL ANTIBODIES AGAINST CD20
Docket No.: GMI-055

Fig 58

VHCD2011B8

```
  1  ATGGAG TTGGGG CTGAGC TGGGTT TTCCTT GTTGCT ATATTA AAAGGT GTCCAG
 55  TGTGAG GTTCAG CTGGTG CAGTCT GGGGGA GGCTTG GTACAT CCTGGG GGGTCC
109  CTGAGA CTCTCC TGTACA GGCTCT GGATTC ACCTTC AGTTAC CATGCT ATGCAT
163  TGGGTT CGCCAG GCTCCA GGAAAA GGTCTG GAATGG GTATCA ATTATT GGGACT
217  GGTGGT GTCACA TACTAT GCAGAC TCCGTG AAGGGC CGATTC ACCATC TCCAGA
271  GACAAT GTCAAG AACTCC TTGTAT CTTCAA ATGAAC AGCCTG AGAGCC GAGGAC
325  ATGGCT GTGTAT TACTGT GCAAGA GATTAC TATGGT GCGGGG AGTTTT TATGAC
379  GGCCTC TACGGT ATGGAC GTCTGG GGCCAA GGGACC ACGGTC ACCGTC TCCTCA
433  G
```

VLCD2011B8

```
  1  ATGGAA GCCCCA GCACAG CTTCTC TTCCTC CTGCTA CTCTGG CTCCCA GATACC
 55  ACCGGA GAAATT GTGTTG ACACAG TCTCCA GCCACC CTGTCT TTGTCT CCAGGG
109  GAAAGA GCCACC CTCTCC TGCAGG GCCAGT CAGAGT GTTAGC AGCTAC TTAGCC
163  TGGTAC CAACAG AAACCT GGCCAG GCTCCC AGGCTC CTCATC TATGAT GCATCC
217  AACAGG GCCACT GGCATC CCAGCC AGGTTC AGTGGC AGTGGG TCTGGG ACAGAC
271  TTCACT CTCACC ATCAGC AGCCTA GAGCCT GAAGAT TTTGCA GTTTAT TACTGT
325  CAGCAG CGTAGC GACTGG CCGCTC ACTTTC GGCGGA GGGACC AAGGTG GAGATC
379  AAAC
```

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Inventor: Jessica Teeling, et al.
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